GLEANINGS IN BEE CULTURE

A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS

ILLUSTRATED SEMI-MONTHLY

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CRITIC TAYLOR seems to think I'm wasting time and energy on "bait sections." Lots of good company in that direction, Bro. Taylor.

THE EDITOR of the *American Bee Journal* does his full share to help the honey market. I've just had the pleasure of a two-days' visit from him, and I think he ate honey at every meal.

"TAKING THE UNITED STATES through, 50 lbs. per year to a colony, on an average, among the bee-keeping specialists, is about what they secure," says Doolittle, page 583. Does that mean comb or extracted? If comb, it's a good bit too high for this "locality."

YOU ARE RIGHT, Mr. Editor, p. 574, in assuming that the larva R. Wilkin talks about with its big feast was "nothing more nor less than the milk with a common worker grub." The only point I wanted to call attention to was that, as the grub was only a day and a half old, its food was the same as the royal jelly.

HONEY SEASON a dead failure here. That knocked endwise all experimenting with plain sections, drawn foundation, and other things. [Too bad, doctor. I really wish you could try these things. Can't you scrape up a honey-flow in the fall? Let's see. Last year you made $5.00 a day from your bees—yourself and assistant. I suppose this year of total failure would split this rate square in two. —ED.]

REIDENBACH, according to *Nærdlinger Bztg.*, has, since 1893, practiced transferring eggs into queen-cell cups, using as a tool a needle somewhat curved at the point. But is there any advantage in using eggs? A larva can as easily be transferred, and will mature sooner. Until it is three days old it ought to be perfectly good for a royal larva, there being no difference between the food of its first three days and the royal jelly.

R. L. TAYLOR, the *Review* critic, doesn't like the way the editor of GLEANINGS talks when in playful mood. A good many like it. I rather like to say "sass" and some other things playfully, but I wouldn't go so far as to use the word "don't" as Mr. Taylor does when he says "It don't lose its sweetness" (*Review*, 216). [I do not know but it is wicked, but somehow I can not help thinking of the glass house and the stone-pile. Bro. Taylor will have to be very careful how he uses the Queen's English hereafter.—ED.]

C. J. H. GRAVENHORST, the much-esteemed editor of *Deutsche Illustrierte Bienenzeitung*, has been very sick since the beginning of the year, and is still confined to his bed. Although past his threescore years and ten, he is a man of remarkable vigor, and it is to be hoped that he may be yet spared long years for the benefit of bee culture in Germany and throughout the world. [Friend Gravenhorst, despite his age, seems to me to be one of the most progressive bee-keepers in Germany. All that he has written on the subject of bees, so far as I know, seems to sparkle from the fountain of eternal youth.—ED.]

YOUR OBSERVATION as to bees first taking food into the chyle-stomach before filling the honey-sac, you think does not agree with that of Reidenbach, Mr. Editor, p. 574. Begging your pardon, I think you are in entire agreement. He killed the bees "as soon as they had taken *a little*." Their first care was to take what they wanted into their chyle-stomachs for their own use, and as soon as that small quantity was supplied they'd go to filling their honey-sacs. You "killed scores of the bees just *as they came from the berries*," and of course by that time they had taken all they needed for themselves, and a surplus besides. See? [Yep!—ED.]

I'M DELIGHTED to see that the editor is beginning to consider how a glossometer can be cheaply made. Once he gets started on that line, he'll not stop till we have a good serviceable affair at a low price. I'd like to have at least a dozen in use at once. Why can't Mr. Rankin tell us what he uses, and how many he has had in use? [While I can not feel very enthusiastic over a glossometer, yet if the doctor will prod hard enough we will see what we can do. But, say (the doctor need not listen now), he has sent a diagram and a scheme

for a glossometer, the best of any thing I have seen so far. I will try to show you a picture of it in an early issue of GLEANINGS. —ED.]

THE *Review* critic refers to GLEANINGS, p. 422, and says: "Of Ranson's plan of 'baiting,' the doctor says: 'It will probably work all right with enough baits, providing colonies are not equal in strength.' Will he explain why it would not be better to have the colonies all equally strong if there are enough baits?" I may say in reply that I didn't say it wouldn't be better. But in that case Ranson's plan couldn't possibly work. The special feature of his plan is to take the super from a colony that has begun work, and give it to one ready to begin work. If all were equally strong they would all need baits at the same time; then how could he take from one and give to another?

TO HAVE BEST SUCCESS with bottom starters, it seems important to have the top starter come down within less than ¼ inch of the bottom starter. Then the bees seem to tack the two together about the first thing. If there's much space between them, the bottom starter topples over sometimes before it's fastened to the upper one, and sometimes they dig away the lower one, apparently to help out the other. [Ah! that explains. I have had trouble with the bottom starters toppling over. Then I thought I made my mistake in having them too wide. It would now appear that the trouble was not because the bottom starter was ½ inch, but because the space between the two starters was more than ¼ inch. Say, doctor, why didn't you give us this kink before?—ED.]

THAT IDEA of having a section filled clear out to sides and bottom to get it best filled is doubtless all straight. The English Simmins uses a section split on top and two sides, the split being a V groove, so the split doesn't show in the finished section. That allows the section to be easily filled entirely full. [Yes, indeed, English bee-keepers have various styles of sections — some that are split clear around. The idea seems to be to have foundation held securely to sides, top, and bottom. I think there can be no question but that better filling is secured when the sheets touch the section *all around*. But Mr. Danzenbaker uses ordinary sections, a starter at top and bottom, but said starters are wide enough to reach clear out to the sides. If they do not quite reach, he will not have them. It is possible that herein lies the secret of the success of having sections without corner holes. —ED.]

"THE HIGHEST chemical authority at the Michigan State Agricultural College says they are identical—beet sugar *is* cane sugar."—R. L. Taylor, in *Review*. But does chemical identity prove identity in all respects? Authorities across the water, including so well-informed a man as T. W. Cowan, say that beet sugar is *not* cane sugar for wintering bees. [We know that charcoal and the diamond are chemically the same; but there is, nevertheless, a vast difference between the two. While I have never been able to discover any difference in taste or appearance between cane and beet sugar, there may, nevertheless, be a difference. Years ago when we had nothing but cane sugar we did not winter our bees as well as we do now when we are supposed to have nothing but beet sugar. But this is not saying that the cane sugar was the cause of the loss. Indeed, I do not believe it had any thing to do with it. Mr. Cowan is a man for whose opinion I have great respect, and I know he recommends, for English bee-keepers at least, cane sugar and not beet sugar.—ED.]

THE THOUGHT of the editor, p. 588, is that when hives are hoisted on four blocks, the bees' flight will be obstructed when working over them or when walking through the apiary. Evidently the thought at the bottom of that is that the bees fly out and in at all parts. One would naturally think so. The fact is, my bees fly almost entirely in the same direction they would if not blocked up. They can use the back or side, but the simple fact is they don't. If the hive were open all around in early spring, the case would be different. But he's all right about the queen. While most of the swarm comes out in front, the queen's just as likely to come out elsewhere. [I never tried hives raised up on four blocks; and that bees would fly out from all four sides was only my theory; but the more I think of it, the more I can see that they would go out just the way they were in the habit of doing before the hive was raised. But after the young bees have begun to hatch I should suspect that they would fly out as readily toward one point of the compass as another. Or is it true that, like a flock of sheep, they will follow their leaders?—ED.]

R. C. AIKIN thinks great stress can't be laid upon retaining bees to build comb that would otherwise go afield, p. 575. Not so sure about that, friend Aikin. Don't bees vary their work according to the demands? Bees don't gather pollen till 16 days old, but I've seen them bringing in pollen when five days old when there was no one else to do it. I believe bees will always be busy when there's any thing to do; and any thing that takes off work to be done in the hive means more work done in the field. [Let's see. We had quite a series of articles going to show that worker-bees of various ages would perform all sorts of work—that is, old bees would rear brood, and do general nurse-bee work; and young bees, when there were none others in the hive, and as soon as they could fly, would go to the fields. Under ordinary circumstances there is a sort of division of labor in the political economy of the hive. The old bees do the field work, and the young bees the nurse work, unless some stress of circumstances causes them to do otherwise. It was the veteran E. France who, three or four years ago, made some quite elaborate experiments, the results of which were as given above.—ED.]

JULY 28 I started robbing by giving a sixth story with a little honey, letting the robbers

get a taste. They worked at it fiercely all day in great clumps, trying to get in, many robbers being slaughtered. Nothing remarkable about that, and I'm not proud of it, but I mention it to say that not another case of robbing occurred in the apiary, although there were 73 hives hoisted $\frac{13}{16}$ inch on four blocks, others with a 12x2 entrance, and some nuclei with ordinary entrance. [If I understand you, doctor, you have had no trouble from robbing in any case where hives have been raised up on four blocks. But the case of robbing you did have was due to the fact that you let the bees clean out supers containing a little honey. I dare say that a good many of the friends who have purchased hives with deep entrances this year thought it would be necessary, after the honey season, to contract this entrance down. Even our apiarist, Mr. Wardell, had somehow got this notion into his head. He had contracted some of the deep entrances. I told him to pull off the blocks and let the robbers have full swing; but so far not one of these hives has been attacked. I would not, however, go so far as to say that such deep entrances would be advisable in case of nuclei.—Ed.]

CALIFORNIA ECHOES
BY J. H. MARTIN.

The other day when Mr. Levering was washing dishes and I was wiping them (you see we are baching together), said he, "Do you know where the term 'Old Reliable' originated, as applied to the *American Bee Journal?*"

"No, I have not the least idea," said I.

"Well," said he, "when I lived back in Missouri there was a stage-driver whose arrival was as regular as the rising of the sun, and seemingly the most violent storms would not interfere with his regularity, and he became noted far and near as the 'old reliable.' When I edited the bee department in the Los Angeles *Herald* the *American Bee Journal* came to the office so regularly that I was reminded of the old stage-driver, and noted the fact, and in the next issue inserted an item calling it the "Old Reliable." Soon after I saw it copied, and from that time to this it has borne that name. Now, some one else may have suggested the same name, but nevertheless the term applied was original with me."

Mr. C. A. Hatch is now in Colorado, engineering an apiary, and hobnobbing with R. C. Aikin and others. Mr. Hatch should not have been discouraged at the failure of the honey crop in Southern California, for there are many places where the bees will roll in quite a honey crop, even in California. Here am I, where the alfalfa is yielding honey quite rapidly, and the conditions are so nice the ranchers believe it makes better hay to stand a while in bloom, and that is just pleasing to the bee-men.

Did you ever have wax and honey stick to the soles of your shoes while extracting, or working where there are scraps on the floor? It is really uncomfortable to have a wad accumulate on the heel or sole, and then it is a vexatious operation to dig it off. I find that a rubber sole greatly mitigates the nuisance. If you do not wish to wear rubbers, peg a rubber sole to your shoes.

Allow me to thank Mr. Theilman for that plan for leveling drawn comb in sections with a common honey-knife. It works like a charm. As I have several hundred to operate upon, that item was valuable to me. I would make the additional suggestion that the knife works well when cold, when the comb is cold and brittle; but if the day and the comb are warm, you also want a hot knife, and that is where a knife-heater comes in handy.

Noting what you have to say about producing comb honey without separators leads me to remember seeing a fine lot of comb honey in Riverside, Cal., that was produced without separators, and there were but a few of the sections that would not pack nicely in the case. Of course, the few bulged sections were just what were wanted for home use. This honey was produced by Mr. George K. Hubbard, and in the Hubbard hive. He says he has no use for separators.

Mr. Editor, that Echo about a certain lot of honey handled by the Exchange seems to be troubling the minds of a few of the directors. I wish to say, in reference to it, that, in echoing the matter, I had no idea of injuring the Exchange. I have no objection to the publication of the letter sent you by the present secretary of the Exchange or by anybody else. I beg the editor's pardon for getting him into the trouble, and agree to hold a clam silence upon such a sensitive subject hereafter. Now, whatever you publish I shall pay no attention to it, for I am now in the midst of a very good honey-flow, 750 miles north of the Exchange, and 2642 feet above it.

[Regarding the last Echo, I would state, for the information of our readers, that, along the last of April, I received an article in reply to a California Echo that appeared in our issue for Feb. 15, referring to the specific gravity and quality of honey that was sold by the Exchange. I thought the matter hardly of sufficient *general* importance to bring it up again. At all events I sent the article to Mr. Martin, and asked him if he cared to reply. He stated that he did not wish to take any space, but had no objection to the publication of the article. After some correspondence with Mr. Clayton the matter was dropped; but it has been resurrected again by the Echo above, and I now give the article that was sent in the first place.

The sample of honey in question was sent us as stated, and I do not wonder that it was by some considered sour. When we came to know its real history it is easy to understand that the acid flavor might be due to the citrus bloom. That it should be necessary to refer to the specific gravity of honey in pounds and *ounces*, I do not believe.—Ed.]

THAT SOUR HONEY.

An Explanation.

BY C. H. CLAYTON.

Mr. Editor: — Referring to Mr. Martin's California Echoes in GLEANINGS for April 15, wherein he speaks of a certain lot of honey weighing between 11 and 12 lbs. to the gallon, and being pronounced sour by "nearly every bee-keeper," I wish to say that this lot of honey was graded in the week between Dec. 25 and Jan. 1; was weighed in the five-gallon can, sometimes two cans on the scales at once, and probably *did* weigh somewhere between 11 and 12 lbs. to the gallon; but where between? Some of the cans were fuller than others; and when the cans were weighed singly they ranged from 57 to 62 lbs., allowing 2½ lbs. for the weight of tins; so the 11 to 12 pounds per gallon is very indefinite. To be of value as bearing on the condition of the honey, the record should be accurate.

None of this honey was sold until well along in January, long after Mr. Martin's employment by the Exchange had ended. There were 98 cases in the lot — 53 white, the rest light and amber.

About the middle of January I received a trial order for one or two cases of white, "candied preferred." This was the only lot of white we handled during the season, that granulated, so I sent some of it, explaining matters to the buyer. The purchaser wrote me it was the finest honey he ever had, and doubled his order, and kept sending orders for it until he had taken the whole 53 cases of white and about 50 of amber and light amber, building up a trade that has taken about six tons in three months, in a town of 8000 inhabitants.

Now, I have on my desk before me, as I write, that identical sample bottle about half full yet, from which those tastes and smells were taken, and it is granulated nearly solid — not a sign of that watery, "bubbly" condition we are accustomed to associate with fermented honey. Will sour honey granulate? I ask for information. I don't know.

For my part I think some dealers and some consumers may know nearly as much about the quality of honey as the average bee-keeper. Our honey is sold under a guarantee; and if there had been any thing wrong with it we should have heard something drop. One party, who at first pronounced it fermented, was given a taste of it a few days later, and fancied he detected a "mild orange flavor," "modified, perhaps, by a touch of lemon." He had been told *where* it was produced. I firmly believe I could, by suggestion, get a dozen different flavors assigned to that little bottle of honey; but it seems reasonable, in view of the sound condition of the honey to-day, nearly a year after extracting, to conclude that the peculiar flavor of the honey is due to citrus bloom; and this should teach us to be careful lest we announce a positive opinion founded on incomplete or no knowledge.

I will mail you a small vial of the honey to-morrow if I can dig it out of the bottle.

Los Angeles, Cal.

MARKETING.

Why Honey Should be Sold at Home rather than Shipped Away; The Competition between Sugar and Honey; Selling Extracted in Preference to Comb.

BY R. C. AIKIN.

Which shall I produce, comb or extracted? One should have some settled policy or plan, and work to that, to attain the best results. I do not write this for those who are bee-keepers just for the pleasure or recreation they may get out of it, but for those who desire to do that which will serve best to make a living.

Comb-honey production is my choice from the standpoint of taste or inclination, yet I am turning my attention more largely to extracted, and I will tell you why. I live in a little city of less than 2000 population, surrounded by a farming community. We have no factories or public works, nor people who are wealthy, retired merchants, or those living on the income of a fortune, but people who are striving for a living. The farming population is not wealthy. Both in the town and country the population is strictly of those who are not capitalists, but of that class who *must* work and *economize* to sustain their business and obtain therefrom their living, hence buy *few* luxuries. In more well-to-do and old-established communities markets are better for all kinds of produce, and a cash basis of doing business obtains that is not found in such a community as this. Loveland and vicinity is less than 20 years old as a business community. We hardly think of selling honey, butter, eggs, and such products, for cash at the stores — can not do it, for they *won't pay cash*. Cattle, wheat, and potatoes, where grown in large quantities, do bring cash; but the lesser products can be marketed only by trading and trafficking. I do not mean that no one pays cash for honey, for people buy of me and pay cash as they would at a store, but there is no wholesale market where cash can be realized as on grain or stock.

This being the case in my locality — and similar conditions prevail in many places — I am forced to take my choice, as it were, of two or more evils. If I ship to the city markets I have left but a small price when freights and commissions are out. The quotations the past year on extracted honey have not averaged over 6 cents, as quoted in the journals (I make this statement without referring to the journals on file, and I think I should be safe in putting it one cent lower yet; but at 6 cts. I have not the least fear of being caught with the figure too high should any one undertake

to compile from the printed records), and comb about 10 or 11. At these prices I can get *about* 5 cents out of extracted if sent to Denver, and 4 cents or less if sent to Chicago. In like manner comb honey would net me about 6 to 8 cents.

I go to my grocer and find sugar of best quality selling at about 6 cts. Syrups sell for almost any price from 2 cts. per pound up to about the cost of sugar.

Now let me ask, is it business, is it policy, is it justice to all concerned? is it *common sense* that I send my honey into the general markets to compete with the products of all other shipping apiarists, and get from 4 to 6 cts. for extracted and 6 to 8 for comb, while the sugar and glucose factories are sending their sweets right in here and selling them to the people whom I ought to supply with a wholesome sweet. Understand, my home customers are a people who can not spend money lavishly, and have what they most want and prefer, regardless of cost, but must calculate what will supply their tables reasonably well at a minimum cost. They *do* calculate the cost, and furnish their tables just as I and all poor honey-producers do and would do if in their places. Friends, come right home and ask yourself, "If *I* were not producing honey, and had to buy sweets, which would I use — 6-cent granulated sugar or 8 to 10 cent honey? Ninety-nine times out of every hundred you would take the sugar.

I had numerous calls for quotations on comb and extracted the past winter, and I quoted 6 cts. for extracted and 10 for comb, *net weight*. For the extracted I asked 6 cts. for just whatever was in the can, then added the cost of a can. A 60-pound can holds about 58 pounds. At 6 cts. this is $3.48, plus 25 cts. for cost of can, making a can of honey cost $3.73. Could I sell at this price to distant markets? No, sir. Neither could I sell comb at 10 cts. *net weight*, which means about $2.10 per case. The best offer I got during the winter, in Denver, was $1.90 per case. The rate to Denver is 42 cts., *about* 10 cts. per case, leaving me $1.80 per case, or 7½ cts. per section. Counting off the cost of case and the sections and foundation, I have less than 6½ cts. a pound for my comb honey. To Chicago, comb would cost me, less car lots, 2 cts. or over for freights alone; extracted, a little less.

Having thus figured the thing through, I found there was no possible chance to get over 5 cts. net for extracted and 7 for comb— more likely 4 and 6, so I decided that my neighbors should have my honey cheap rather than to ship it at these prices. I accordingly advertised my extracted at 6 cts. strictly net weight, *package extra*. I would sell a customer lard-pails or 5-gallon cans at cost, or they could bring their own vessels and have them filled. Thus I sold my extracted at 6 cts. net, and had at the *least* a cent a pound for trouble in retailing, compared with the wholesale prices in the general markets. Comb honey I sold at 10 cts. net, case to go with it, or 7 to 9 without case.

My crop of extracted was 5500 pounds. It all sold at home, and I bought other and shipped in, yet have been out of extracted since about February. I had one ton of comb, shipped 20 cases of it to Denver, and still had a few pounds left the middle of May.

It is now evident that I could have sold my crop of extracted at 7 cts. had I held the price to that; but I did not know that my advertising was going to be so effective. I had bills printed and scattered broadcast, and also used a lot of honey-leaflets. The people found that the honey was as cheap as sugar, so bought it in preference to that and cheaper glucose syrups. Many who had never used honey now say they can not do without it. Five-gallon cans that I sold keep coming back to be refilled. I am so well pleased with the results of selling at home that I propose to make a local market for 10 to 20 tons a year. I know that I can sell fine extracted honey at 6 cts. *net* to many who have been using the glucose syrups that sell at not to exceed 3 cts. per pound.

Granulated sugar is a good sweet, and will, *in spite of us*, compete with honey, and there is no use ignoring the fact. My market will not take enough comb honey at 10 cts. a section at retail to consume two tons a year while sugar can be had at $6.00 or less per 100 lbs. I now have bees enough to produce this year 8 tons of honey at a yield of 50 pounds, and I believe I can sell that much at home far better than it would net me shipped out.

EXTRACTED IN LARD-PAILS; CANDIED HONEY DEFENDED.

When I extract I shall put much of it into lard-pails of 3 and 5 pound sizes (such pails hold 4 and 6 to 7 lbs. respectively of honey), and let it candy solid. I sold much that way last winter. You, Mr. Editor, in a footnote to a former article of mine, page 444, June of last year, said: "I question whether we could get the general public to look with very much favor on a package of extracted honey that is candied—one that must be brought to a liquid condition before it is consumed."

I want to say just as emphatically that the marketing of extracted honey in the candied form *can be made a success* if we will just do it. I find the people very readily take up with the idea when it is put before them, and last winter I had no trouble whatever in selling many hundreds of pails of honey candied solid within two weeks after being extracted. I put in the top of each pail a printed slip telling how to liquefy, laying the paper right on top of the honey. This way it sold right along, and was about the only way the stores would handle my extracted honey.

I do not retract one bit from my former position about the necessity of a standard *cheap sealing package* for retailing extracted honey, as told on pages 409 and 443 of GLEANINGS for 1897. All honey will not granulate solid like Colorado alfalfa, and a tight-sealing package is a necessity.

I am not alone in this experiment of marketing candied honey. Mrs. A. J. Barber, of Mancos, Colorado, has also worked out the matter, and now enjoys a local trade that can

be duplicated in thousands of localities, and the consumption of honey increased many fold. Read what Mrs. Barber says for herself in a paper read before the Colorado State Association in Denver last January, and in private correspondence with me. See convention report in *American Bee Journal*.

In addition to what I said a year ago about a standard cheap sealing package, let me digress here by saying that there are very many homes where honey ought, can, and will be consumed, that have no use for fruit-jars. The package for the masses is something very inexpensive, and to cast away when emptied, or a cheap general-utility package. A lard-pail serves fairly well for candied honey such as we have here — our honey is soon as solid as lard — indeed, its color and appearance are much like lard, but it does not fill the bill.

Market conditions differ in different localities, and I am not setting an arbitrary price that apiarists shall charge for their honey; but it is reasonable and just that localities in which any thing is produced should be able to buy that product for less money than do those 500 or 1000 miles from the producer, and after transportation charges and commissions are added to it. Why is it that we can many times go to a neighboring town or city and buy a sack of flour for less money than the manufacturer of that same flour would charge right at his mill? or that manufacturers of farm machinery sell in foreign lands for less money than they charge those at the very doors of the factory? Such methods do not encourage home consumption.

If you are the only producer in a community, or if your vicinity does not produce in quantity equal to the demand, you set your price according to the demand. If, on the other hand, your production is in excess of the demand, then increase the demand by advertising and introducing your product. Show the people that you have a fine article of sweet to sell them, and that they should patronize home industry. Prove your faith by your works; and when you offer your goods, and expect them to buy, take their products in exchange in all such as you can and do use. Trade for hay, grain, flour, fuel, labor, groceries, and *all kinds* of goods you need and would buy. Remember, however, that you must not expect people to buy honey at fancy prices when they can buy *good* sweets of other kinds for much less money, and especially when selling to the *poor people*. Put up fancy goods in fancy packages for the wealthy who care not for cost so long as their fancy is pleased, but govern yourself by the demands of your customers.

Friends, I do not for a moment contend that the law of supply and demand, even though coupled with push and energy, will get us just returns for our product; for, so long as greed and oppression are allowed to have sway, so long will there be injustice. We are in the world, and in contact with evil, and we can not expect to pass through the fire and escape without some burns. The purpose of this article is to help better our condition.

Since, then, we must contend with the laws of supply and demand, and the demand is governed by needs and our ability to supply these needs, let us face the matter squarely, and do the best we can. Advertise our product and let the people know what we have. If the foreign trade will take our honey and pay more than our neighbors, ship it; but if we must sell to the city wholesale trade at 4 cents net, let our neighbors have the goods just as cheap, plus a reasonable compensation for our additional labor in selling in small lots.

My home trade at 8 to 10 cents per pound for extracted would be very limited indeed; yet at 6 cts. I can sell several times as much as at 8 cts. I can not produce much more, per colony, of extracted than of comb, but I can produce it easier—that is, with less skill, and with labor more evenly distributed throughout the season; hence I shall give more attention to extracted than heretofore. Extracted will keep indefinitely; but comb soon degenerates in appearance, which soon puts it on the level with extracted as to price, hence is the more risky product.

I say, then, produce extracted, and sell at home for the use of the masses, but limit production of comb to the demands of the fancy trade.

Loveland, Colorado.

[The foregoing is a valuable article, and contains many suggestions worth considering. It is true that, when granulated sugar can be sold to the consumer more cheaply than extracted honey, the latter will go begging. Quoted at the same price, it will work its own way into favor, especially with a liberal use of the honey-leaflets. And that emphasizes the point that now is the time to scatter them, because, if honey is to be a scarce article this year, let us all get all for it we can by a process of education such as the honey-leaflets will furnish.

I did not mean, friend Aikin, to throw cold water on your candied-honey idea. I think the scheme most excellent, and wish you might be successful in pushing it into prominence. GLEANINGS will offer you all the space you require, and its editor will be very glad to prime the ammunition.

If the trade can be educated up to the fact that candied honey is just as truly honey as it is in the liquid form, it certainly would be willing to buy liberally. Indeed, a good many say they prefer the candied to the liquid. In cold weather, a good chunk of honey in the solid form is, to some, more delicious than a good deal that is in the liquid form. This is partly due to the fact that nothing but the best of the honey candies, while the rest separates away in the watery portion.—ED.]

RAMBLE NO. 150.

A Donkey-ride up the Mountains.

BY RAMBLER.

A citizen of Los Angeles, in pointing out the various attractions of his beautiful city, does not forget to point with pride to the

mountains northeast of the city. Mount Lowe is noted from having an observatory and a hotel well up toward the summit, with a cable-line railroad to nicely deposit the traveler at its doors. This railroad and the hotel are very prominent objects from the valley below, and are easily pointed out to the stranger.

A little beyond Mount Lowe is Mount Wilson, and a little more elevated. Here, instead of the cable and the electric line, we have to take the donkey train; and if any person wishes to take the most picturesque and enjoyable climb, this is far preferable. We take almost any kind of conveyance to the foot of the trail at Sierra Madre, and here we find another very good friend of the Rambler in the person of W. M. Sturtevant. This genial gentleman has charge of the trail and the donkeys, and attends to the comfort of the traveling public, whether old or young, grave or gay. Just through the gum-trees from the donkey corral he has a fine apiary; and, owing to the apiary, we became acquainted.

Mr. Sturtevant, when in the city, had several times invited me to his place, "and," said he, "come out any time, and you and your lady shall have donkeys to take you to the top of the mountain."

"But, Mr. Sturtevant," said I, "I have no lady."

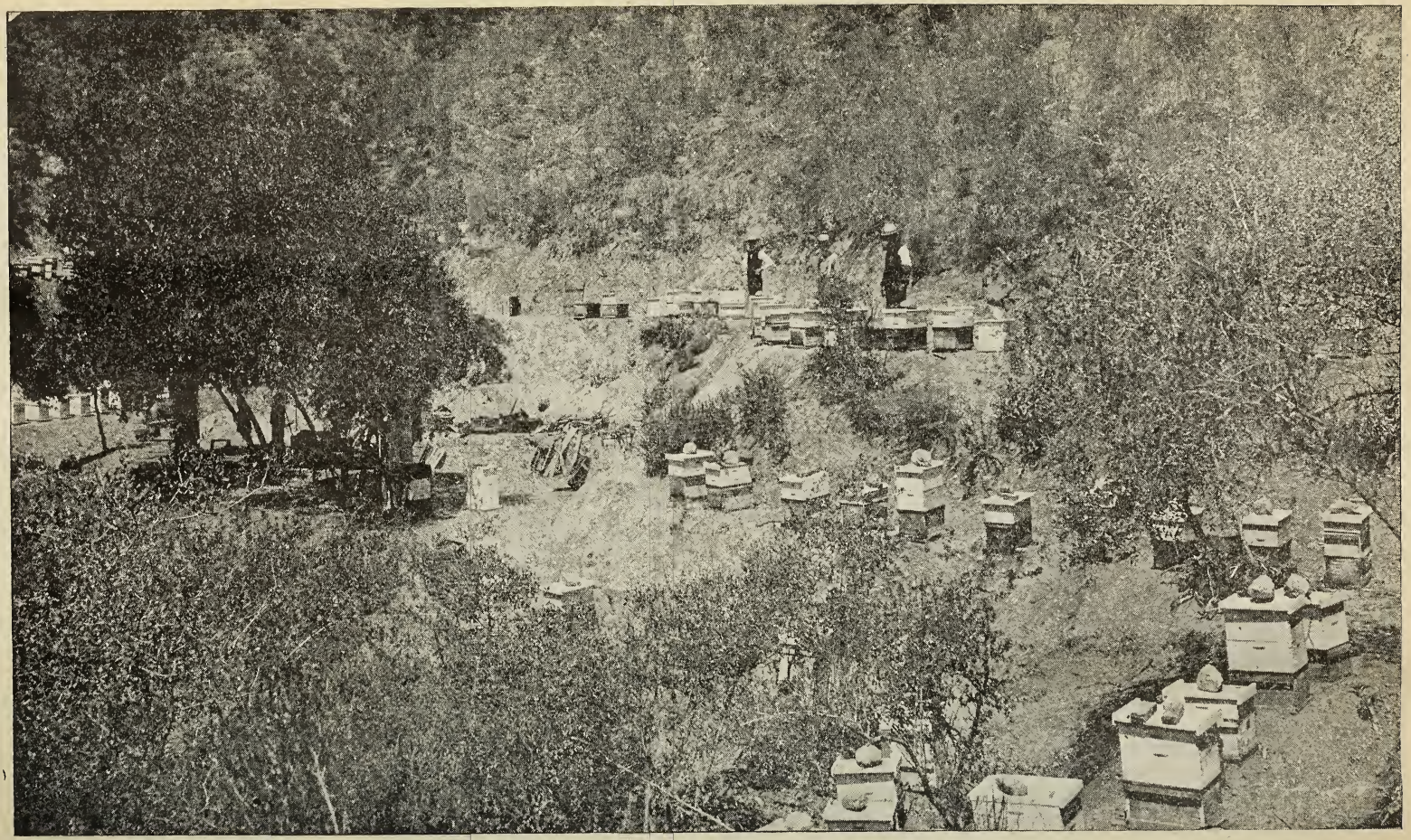
"Why, get one, Mr. Rambler, get one; it is the easiest thing in the world if you only start right."

The matter rested right there for several weeks; and one day Mr C. A. Hatch, another good friend of mine, was in town, and I mentioned the matter to him. Now, I might have known better; for Mr. Hatch is one of those men like A. I. Root, Prof. Cook, and others, who are always preaching and practicing matrimony, and I had scarcely mentioned the matter to him when he exclaimed with much enthusiasm, "Just the thing, Mr. Rambler; my home in Pasadena, you know, is half way to Sierra Madre; come over and stop all night with me, and then you can get an early start in the morning, and have more time to spend on the mountain; and the lady—"

"Don't mention her, Mr. Hatch; don't," said I.

I finally agreed to go over the next Friday evening, and was promptly there at tea-time. I found Mr. Hatch apparently enjoying a well-regulated family—wife, son, and daughter, and occupying half a house; the other half was occupied by a Mr. Cole, who had

RAMBLER'S DONKEY-RIDE UP THE MOUNTAINS.



APIARY OF WM. STURTEVANT, FOOT OF SIERRA MADRE MOUNTAINS, CAL.

sons and daughters too numerous to mention. Mr. Hatch and I had several bee conventions that evening, and discussed the various phases of the industry. Mrs. Hatch, and, in fact, the whole family, are well posted in bee-lore, and ought soon to graduate first-class bee-keepers, for Mr. Hatch has put them through a course of training in Wisconsin, Arizona, California, and is now in Colorado; and, after trying a few more States, he will no doubt wind up in California again.

I think there was a lady present at some stage of the evening's proceedings; but the bee-question was of such absorbing interest that I had no time to give much attention to her except to note that she had a very pronounced chin. When I see this characteristic in a woman I am always shy of it, and I did not make this case an exception. At an early hour I wished to retire, and Irvin showed me the room which I was to occupy with him, and which was run in copartnership with the Cole family. After lying awake half the night trying to guess the motive Mr. Hatch had in calling that chin to his house at that particular time, I concluded to give up the problem; and, if he asked me about my night's rest, to turn it off with a joke.

Accordingly, in the morning when he asked the question about my night's rest I told him the fact that I did not sleep half the night.

"Why, what was the matter, Mr. Rambler?" said Mr. Hatch.

Said I, "Mr. Hatch, I did not think you would serve me such a trick as you did last night; besides, the weather being a little bit warm you put me between two beds of live Coles."

"Live coals? how is that, Mr. Rambler? I shall have to call Irvin to explain the matter unless you can."

"Certainly," said I; "that is easily done; wasn't there Sam and Joe Cole in one bed and Bill and Jim Cole in the other? and I guess you would have thought them alive had you heard their nocturnal gymnastics with legs, arms, and lungs."

"Oh! I see," said Mr. Hatch; "that was a regular Cole pit, wasn't it? But Irvin stands it, and I guess you can."

Then I don't know whether Mr. Hatch meant it as a counter-joke or not; but he said, "See here, Mr. Rambler, I have an action against you; that lady who was here last evening felt as though you ignored her, and has departed."

"Thank fortune," said I;" and did she take the chin with her?"

Mr. Hatch ignored my remark, and continued, "You see I had arranged to have the minister around here at an early hour; and who knows, Mr. Rambler, but you might have gone to Mount Wilson on your wedding-tower?"

"Wedding-tower? Why, Mr. Hatch, I'd not have such a tower as that fall upon me for the world; it would just crush all of the independence out of me. I feel I have had a fortunate escape."

A little after breakfast the minister came riding up in his canopy-top shay, and as fresh and smiling as a rosebud. He seemed in nowise disappointed at the turn affairs had taken. Having quite a family of his own, and being a sympathetic man, he desired as far as possible to help other men avoid trouble; and, as though he wished me to get away from that environment, said, "Mr. Rambler, we shall take that tower to Mount Wilson, any way."

Yes, he was a real good man; and the memory of him lingers with me. In accordance with his wishes, Mr. Hatch and I mounted his canopy-top shay, and away we whirled.

We found Mr. Sturtevant at the foot of the trail attending to the needs of the donkey-riders; several parties had gone up the trail already. The first thing we attended to, however, was to investigate the apiary and the bee-fixings.

Land is valuable here, and, furthermore, bees are liable to frighten people who go by donkey up the trail; therefore the bees are crowded back into the little canyon upon land that is useful only to grow greasewood and sage. Here the almost perpendicular side hill is neatly terraced in a winding way, here around a point and there curving into a gorge. The photo shows only a small portion of the apiary, and, owing to the numerous curves, it was impossible for us to get a view of it as a whole, as it numbers well up toward 200 colonies.

In the photo before us the first man so well protected is our friend the minister; the next is the proprietor, Mr. Sturtevant; and the next is that schemer Mr. Hatch. We sauntered around the pretty terraces, and canvassed the prospects of a honey season. Mr. S. despaired of getting much except from the citrus bloom, which was then coming out, and from which he hoped to get enough to save from feeding his bees.

Mr. S. uses the L. frame, and is introducing a very shallow frame for extracting. The super can be used either for holding sections or frames; and the latter, I think, are only four inches deep. One reason with Mr. S. for using these shallow supers is to avoid the lifting of heavy supers, which is quite an item when the operation is performed all day, and by a man not as strong as Goliah.

Mr. Sturtevant's crop of honey was fair last season; but owing to the prospective failure this season, he had turned his attention to the opening of a new trail to the north fork of the San Gabriel River. Here he was laying out a new camping-ground which I have no doubt will be well patronized. For this new route his donkey corral would have to be enlarged with more donkeys. The donkeys for mountain-climbing were quite valuable, and their value increases with age and experience.

We were duly mounted on our steeds for the trail; and, while thus ready, the minister snapped the camera at us. The donkeys all have appropriate names, and Mr. Hatch was mounted upon a warlike steed by the name of Phil Sheridan. The name of my sad-eyed creature was Nelly Bly, while the minister was mounted on one of the old members of the band by the name of Noah.

It is needless to say that our trip up the

narrow trail was highly enjoyable. A trail, in order to convey the tourist to the summit of such rugged and seamed mountains, is of the most tortuous description. In some places there is a sheer descent of hundreds of feet below you, and the donkey persists in traveling on the outer rim of the trail. Some nervous people get off and walk over these pokerish places; but as none of us were nervous we kept the donkeys traveling. Sometimes the trail takes such a sudden turn that the advance person of the party faces the rear ones, but still climbing on another grade. Now and then we get grand views of the country below, and the higher we climb the more it expands. Then when we reach the larger timber, what a cooling influence comes over us! Here we find more water flowing, and meet quite respectable waterfalls, which are refreshing to the eye and palate. It is no wonder that the mountains are sought by a number of people in the dry and hot season.

We gave our donkeys an occasional rest, examined the contents of our lunch-basket, and swapped jokes. Mr. Hatch, at one of these resting-places, observed bees sipping water from a mossy stone. Their direction of flight led up the mountain, showing that there were wild bees, even in these inaccessible cliffs.

Upon our return we found our donkeys much better travelers than in going up, but still they are not a hasty animal, even in going down grade. At an early hour in the evening we were again in front of the Hatch residence, but, fearing a recurrence of the chin and the Cole pit, I hastened to take the electric car for the city, where I found rest again from the harassing cares of this life, and a kindly remembrance of my mountain trip and the friends who promoted and shared it with me.

BEE-KEEPING IN "MERRIE ENGLAND."

Apiary of John M. Hooker.

Our illustration represents the apiary of Mr. John M. Hooker, during his residence at Heathfield, Sevenoaks, Kent. The hives were placed around the kitchen garden, and were from thirty to forty in number. It will be seen from the view that they are conveniently situated for manipulation from the garden-path behind them, the hives being arranged in a single row so that the flight of the bees was in no way obstructed during examination, as is often the case where, for want of space, they are placed closer together and in front of each other. The garden operations were not interfered with by annoyance from the bees, the gardener doing any necessary work immediately in front of the hives either in the very early morning, or after the bees had ceased flying for the day. Mr. Hooker informs us that his apiary was often visited by well-known members of the B. B. K. A., and it was here that Mr. Cowan, Mr. Cheshire, and Mr. John Hunter stayed with him for the purpose of arranging and deciding the preliminary details and scope of the work "Modern Bee-keeping," then proposed to be published by the B. B. K. A.

APIARY OF JOHN M. HOOKER.—FROM BRITISH BEE JOURNAL.

The belt of trees and shrubbery on the left of the picture—behind which is seen a portion of Mr. Hooker's residence—divides the kitchen garden from the ornamental portion of the grounds.

The district of Sevenoaks is very favorable for the production of honey, and Mr. Hooker usually obtained a large quantity of comb honey in sections of good quality, and found no difficulty in disposing of it either in the neighborhood or at Tunbridge Wells. In the latter place he employed an old country woman to take the sections round to the houses of the resident gentry; and in this way, after paying the old lady liberally, a market was found for the honey at a good price. Mr. Hooker is of opinion that a home market can be found in this way in almost any district for best honey, and that better prices will be got than by putting on the market through a middleman. On his leaving Sevenoaks the apiary was disposed of; but, although living so near London as Lewisham, Mr. H. has always kept several hives, but, of course, the yield of honey from so near town is always small.—*British Bee Journal.*

BEE-KEEPING IN THE DIFFERENT ISLANDS OF THE SEA.

Their Tropical Beauties and Special Attractions.

BY W. K. MORRISON.

People often write me letters, asking for information in regard to the Bermudas and West Indies as a country for bees and as a place of residence. It is evident the writers think that Bermuda forms a part of the great West India chain, though it is much nearer to Nova Scotia than to any Carribean island.

Bermuda is just 19¾ square miles in area, hence there is no scope for bee-keeping. The colony is, however, very healthy, and any one with capital enough to buy a small place need never want. In former times the Bermuda oranges and lemons were famous for their quality. The trade has disappeared, principally from neglect. The native peaches grow well, have no diseases; but the plum curculio destroys the fruit. This would be an excellent place for a man who thoroughly understands the culture of fruits. My own opinion is that, for semi-tropical fruits, this island is much superior to Florida. As nearly all food is imported, the cost of living is high; but an American could and probably would grow a great deal of his own supplies.

What has been said of Bermuda applies equally well to Barbadoes, except that the living is cheap—very cheap—so that it would be better to see that island. I would advise Canadians to try Bermuda, and Americans Barbadoes. This place (Bermuda) owes its value (and its prosperity) to its military position, being held to defend the great stream of commerce that flows from the British Isles to America. For these reasons persons who are not subjects of Queen Victoria can not own land. In other British colonies there are no restrictions of any sort, and life and property are perfectly safe — safer than in London or New York.

Some of the islands are excellent fields for bee-keeping, especially the "Wet" islands; but it is difficult to get an exact idea of their abilities in this respect. A live man would hardly make a mistake in trying Grenada, Trinidad, or Jamaica. Many things ought to be thought of before making such a tremendous jump, so to speak. He wouldn't bury himself, either, as one might imagine, for the people are fond of innocent sports, and with the happy-go-lucky African there is no end of amusement and recreation.

Most of the islands contain a public library kept at public expense; also excellent botanic gardens. Indeed, Jamaica and Trinidad both have gardens superior to any thing of the kind to be seen in the United States. St. Vincent has one 150 years old. Most of the islands have good churches, and all of them good medical facilities. Barbadoes and Trinidad have good schools and colleges.

In St. Kitts, St. Croix (Danish), Nevis, Antigua, and Barbadoes the people, both colored and white, speak excellent English. In Dominica, St. Lucia, and Grenada, a French *patois* is spoken, though efforts are being made by the British government to change this.

Representative government has been given up by most of the colonies, owing to the heterogeneous character of the population. Each island has some striking peculiarity to distinguish it from the rest.

Montserrat is famous for its healthfulness, the Irish brogue of its inhabitants, and its far-famed lime-juice plantations. Trinidad has its Pitch Lake; St. Lucia has its Soufliere; Dominica has its boiling lake; Antigua its duck-ponds, and St. Kitts its Mt. Misery. In most of them the scenery is very fine. There is nothing finer in the world than the scenery of Jamaica as seen from the sea, with the famous Blue Mountains in the hazy distance. Nevis, the home of Alex. Hamilton, is a perfect gem of tropic beauty, but it saddens one's heart to see so many fine ruins about the island; for in the golden days of prosperity, when Nevis was the Saratoga of the West Indies, where wealth and fashion kept high revel, it had 12,000 prosperous white inhabitants. It now has 100. It would be a good place for bee-keeping yet. If any one has the money to spare he had better visit his would-be home first. Most of the men who hanker after Mexico or Cuba would succeed better in a British colony, where the English language prevails or is well understood, and where he will enjoy most of the comforts of civilization, and law and order well looked after. Most of the islands are healthy enough. No intemperate man should ever move to the tropics. He has no business there at all. Energetic bee-men would probably do well; but study the situation well first. Such men ought not to expect things to be the same as they are up north, and it is well not to condemn things till you are certain you understand the situation.

Those who desire information at first hand

ought to write to the director of the botanic station of the particular island he desires to know about. The would-be emigrant ought to read Charles Kingsley's "At Last," Washington Eves' "West Indies," and Fred K. Obers' "Camps in the Carribbees." These are first-class books to read—anyway, especially of a winter's night.

Correspondents often forget that the foreign postage is five cents, hence their letters remain unnoticed. It is also well to inclose a stamp for reply.

WORKING THE APIARY ON THE TWO-STORY PLAN.

Some Questions Answered.

BY DR. C. C. MILLER.

Dr. C. C. Miller:—Being much interested in discussion of the two-story-brood-chamber system I should like "more light" on the following points, which please answer through GLEANINGS:

1. Is the second story left on all winter? if added in spring, when?

2. In removing this surplus brood-chamber, (*a*) what is done with the brood it contains? and (*b*) how are bees gotten out of it? (*c*) which story is left on stand—upper or lower?

3. (*a*) Are the stories alternated? (*b*) if so, how often?

4. How can the number of colonies be increased under this system? G. F. HADDER.

Mitchellville, Ia., July 16.

[Dr. Miller replies as follows:]

1. I can answer as to my own practice only, which is by no means uniform. As I cellar my bees it is more convenient to have the bees in one story through the winter. A second story is given whenever convenient, at any time before the bees are crowded for room in the one story. Usually it is given some little time before the extra room is absolutely needed, the combs of the added story being cared for nicely by the bees, and, being in their care, more free from mold, mice, and worms than in any other place. In the extra combs given, some are likely to contain more or less honey, and the bees do not despise such little attentions. If I practiced wintering outdoors, I think I should allow the bees the two stories all winter.

2. (*a*) In the fall the brood will be in only one chamber, or can easily be gotten into one. Sometimes a queen-excluder is put between the two stories three weeks before the time of reducing to one story, thus making sure there shall be brood in only one story. At time of putting on supers, any colony which has more than eight frames of brood shares its brood with those which have less; and if it should happen that there is an overplus after giving 8 frames to each, such overplus may be disposed of in any way that seems most advisable at the time, among the ways being the establishment of nuclei, and also piling the brood two or three stories high so as to have it ready to draw upon when needed.

(*b*) Of course, the only time when there will be any trouble about getting bees out of the extra story is in the fall. Sometimes the upper story is gradually raised, first being blocked up at the front end, afterward at the back end, and still later being raised enough higher so all the bees will desert the lower story, which will hardly work well unless all the honey present can be packed in the upper story. Oftener no such preliminary measures are taken. Both stories are lifted from the stand, and the upper story set back on the stand. Near by the lower story is an empty hive-body, a robber-cloth usually being over it, and one also over the removed lower story. As fast as each frame has the bees brushed from it in front of the hive remaining on the stand, it is put into the empty hive.

(*c*) When the extra story is added it is always given below, and the upper story is always considered the legitimate brood-chamber, the bees extending their room downward just as fast and as far as they have need. This makes no demand on them to keep warm any unoccupied room, which would be the case if the additional story were given above.

3. They are never alternated.

4. I am sorry to say, just the same as under any other system; for you probably have in mind that there will be no swarming, which is far from being the case *in this locality.* When the room is reduced to one story, the bees are very likely to get it into their heads that it is their bounden duty to increase and multiply. If the two stories could be continued indefinitely, the chances for swarming would be very much less. But I have not made a success of having the two stories left, and still getting a good crop of comb honey. Perhaps if I knew enough I might succeed. It is true that one year the only colony in the apiary that did any thing in supers was one that was left in two stories throughout the summer. But in all other cases the one-story colonies have done the best, I think.

With the two-story system you have also the advantage of making increase, if you so desire, at the time of taking away the lower stories, when putting on supers.

It is proper to say that I am as yet only feeling my way in the practice of using two stories. This season I hadn't enough extra combs to run the larger part of my colonies that way. I'll have more for next year. The flat failure of the honey harvest leaves me at a standstill as to progress. As the editor has been working somewhat in the same line, I shall be exceedingly glad to learn from him in what way my practice can be bettered. I think neither of us knew the other was working along the same line until after considerable time. So we may differ considerably.

Marengo, Ill. C. C. MILLER.

[I believe I would answer all the questions about the same as Dr. Miller has done, except the last one — No. 4. A two-story colony, to do much in comb-honey supers, should not only be a strong colony but one that is big enough to fill the hive crammed full of bees from bottom-board to cover. As I have said,

if it is not strong enough it will not do much in a comb honey super, and in that case one of the stories to brood-chambers must be taken off, and in its place should be put on comb-honey supers—not one, but two—enough to accommodate all the bees comfortably.

I do not care what you call it—substitution or contraction. If Bro. Taylor prefers contraction, then I am willing to call it such; but I have explained in another column that it is not the same kind of contraction.—ED.]

RANDOM SHOTS.

Swarming.

BY W. A. H. GILSTRAP.

Some bee-keepers worry about swarming as if it could not be prevented. With the Heddon hive you can have the lower story on the bottom-board all the season, and put another story of combs or foundation on this one when the hive becomes sufficiently crowded, and you will have practically no swarming. If you are afraid to have colonies "too strong" you had better not take the advice above, for a four or five story Heddon hive, when the honey-flow begins, is liable to "boil over" during the honey-flow. My divisible-brood-chamber hives contained the first strong colonies this year, and could be run for swarming if you do not care to manage them otherwise.

My bees will not carry honey "upstairs" *a la* Heddon when the cases of the brood-chamber are alternated. Are my bees too much Italian, or am I too green to manage the hive properly? I use ⅜-inch hive-rests for sides and back of hive, leaving the front open during the honey-flow, with a stick about like a leadpencil under one side of the lid, which gives ample ventilation.

The above will prevent swarming, with my bees at least. After the swarming-fever commences the only way I know of to stop it at once is to kill the bees or close the hive so they can not fly.

THE U. S. B. K. U.

Skylark proposes to have all articles excluded from the bee-papers if not written by members of the above Union—*Am. Bee Jour.*, page 404. Mr. Israel never said any thing that struck my fancy better, and still it might exclude some good material from the public. How would it do to give the members of the Union a decided preference?

I believe GLEANINGS is still 75 cts. a year to members of any bee-keepers' society, local or national, on certificate of membership from the secretary of such organization. The secretary of the Union would be glad to send out 5000 such certificates to GLEANINGS, I think. I can't indorse all the editor's variety of religion; but as a bee-keepers' paper GLEANINGS appears to me to be in the front, and deservedly so. Just think of a membership in the Union, and GLEANINGS one year, for $1.75!

PACIFIC BEE-PAPERS.

They never live long. The Fresno County Bee-keepers' Association voted money out of its treasury to pay for "our California newspaper" on the generous terms offered by the publisher. Months have passed, and no publisher, paper, nor money has been located yet. I guess California soil or climate is not good for such literature.

APIS DORSATA AND OTHER PESTS.

This State is the dumping-ground for pests. We had jack-rabbits, dry years, alkali, etc. Johnson grass was brought in to flourish in our fine country, and it proved to be a curse. Bermuda grass is a genuine curse when it gets into orchards or vineyards. It can be plowed as easily as sole leather, and can be killed; but the weak-kneed and faint-hearted had better not try it. However, it makes good pasture during the hottest part of the year.

Apparently we are to escape the *Apis dorsata* invasion that was threatened. This tickles me. Please don't worry us with any new troubles. Irrigation has caused the alkali to come to the surface seriously in places. Some land that was splendid ten years ago is almost worthless now. Some land stands irrigation well. Large tracts of our land can not be irrigated because we have so much more land than water. Do you blame us for calling a halt?

COMB HONEY.

One of our worst drawbacks here in comb-honey production has never appeared in print, so far as I know. The desert sand settles on the section before and after being filled with honey unless you are very careful. Add this serious obstacle to a usually weak honey-flow and you will see why we can most of our honey.

Caruthers, Cal., July 14.

NON-SWARMING SYSTEM.

Contracting the Brood-apartment.

BY B. F. AVERILL.

Mr. Root:—Noticing the article on page 549, describing the non-success of the non-swarming system with which I experimented several season, I beg permission to reply that there must have been some serious fault in the writers' method of manipulation. I should like to inquire of expert apiarists who are readers of your journal, what would be the per cent of swarming under the following conditions of management. For instance, take in spring, at the commencement of the swarming season, a colony of bees having 8 frames of brood in a hive containing 10 frames. If worked for extracted honey, give to the division in front of hive with queen the 5 frames of brood that are liable to hatch first. To the rear of the zinc division-board place three frames of empty comb, and a comb containing young larvæ at the rear; or occasionally, if early in the season, the weather being cool, the larvæ should be placed between the frames of empty combs. Above in the surplus apartment are to be placed the two remaining combs of brood, appropriately hanging them above the zinc division-board of the

lower hive, with an empty comb between them if the colony is strong. Under such conditions what per cent of swarming would be liable within 30 days? After that length of time I should expect swarms, if the surplus combs were not extracted. My experience has been that swarming is usually occasioned by that prosperity of a colony that promises a *superabundance* of population and stores. A proper manipulation will counteract in various ways all inclination of colonies to swarm, whether worked upon the principle I have explained or otherwise. Large colonies are much more inclined to swarm than small ones provided with a proportionate amount of room for storage of surplus.

Give a colony having 5 frames of brood at the beginning of the swarming season a two-story hive containing 18 frames, for their occupation, restricting the brood-rearing of the colony to the original 5 frames. They would breed up to a pretty good working colony during the season, but the number of swarms from 100 such colonies could be counted upon the fingers of one hand. Even with 6 brood-combs this liability to swarm would be about the same unless it was a very provident season and the extracting was neglected. Place a strong colony of bees under the same conditions at the beginning of the season, selecting the proper combs for the different positions they are to occupy in the hive, and where is any increased liability to swarm to be expected? I have not experimented in this way, working for section honey. There would be a little more tendency toward swarming in an apiary worked for box honey than if worked for extracted; but if this work were done just as a colony began to store well in the sections the difference would be trifling. But, this is only my opinion!

Howardsville, Va.

[Why, friend A., it seems to me your system is the *very one* that would induce swarming in a wholesale way. In my experience, curtailing the queen is almost sure of itself to breed discontent; and when you say that *large* colonies are more inclined to swarm than small ones, I wondered what kind of bees or locality you have. Your experience is almost diametrically opposed to that of the great majority of the whole bee-fraternity. Why, I supposed it was almost an axiom that large colonies are *less* inclined to swarm than small ones. What does the Dadants' experience mean all these years on this point?—Ed.]

BEE-SPACES OF ITALIANS AND BLACKS.

Is it True that the Latter make Fatter Combs?

BY A. E. COONROD.

Mr. E. R. Root:—I notice in Gleanings, page 550, that you would like to hear from all those who keep only pure black bees, in regard to the bee-spaces used by them. I have only the black bees; and after reading your footnote to Mr. J. E. Crane's article I went to the honey-room and measured several sections and found the bee-space used by large colonies in the height of the honey-flow to be scant $\frac{3}{16}$ inch, and by the smaller colonies to be a little over $\frac{3}{16}$, or about $\frac{7}{32}$ inch; but on an average they are $\frac{3}{16}$. I use the plain section with the fence, and, of course, I measured from the slat to the face of the comb. I like the plain sections very much, but the bees fill them too nearly level full; and don't you think that could be avoided by using a section $\frac{1}{8}$ inch wider, and making the cleats on the fences thinner? For instance, take the 4x5x $1\frac{3}{8}$ sections and make them 4x5x$1\frac{1}{2}$; then make the cleats $\frac{1}{8}$ inch thick, and raise the lower edge of the bottom slat in the fence a full bee-space above the inside of the bottom of the section; also lower the upper edge of the top slat $\frac{2}{16}$ inch below the inside of the top of the section to allow the bees room to pass up into the next super above. My fences are fixed that way at the top, and the honey is not bulged any more than it would be where the cracks are in the fence, and there isn't any ridging that is noticeable. I think that, if the edge of the section could project $\frac{1}{16}$ to $\frac{1}{8}$ inch from the face of the honey it would avoid any danger of breaking the cappings in shipping or handling the sections.

Elizabethtown, N. Y., July 25.

[Our readers will remember I stated that, from numerous measurements, we found that bee-spaces — that is, the spaces from the face of a comb to a line or straight edge across the face of the old-style section—was $\frac{1}{4}$ inch. Mr. J. E. Crane, who keeps black bees mostly, found the measurement to be somewhere about $\frac{3}{16}$. The article above seems to confirm Mr. Crane's position, and would go to show that blacks use a smaller bee-space than Italians, The matter is very important, because it determines the thickness of the cross-cleats on the fences. If $\frac{3}{16}$ in. is the bee-space made by black bees, then the cross-cleats on the fences ($\frac{2}{16}$ inch) are a trifle too thick.

Now the question arises, How generally are *pure* black bees used in preference to either blacks or hybrids? My impression is, that the majority of progressive bee-keepers use hybrids, because they secure as much honey as Italians, and more than blacks; because they are proof against the moth-worm, defend their entrances better, and to a great extent combine the qualities of both varieties of bees. If, on the other hand, progressive bee-keepers like J. E. Crane use black bees pure and simple, and the number is considerable enough to make quite a sprinkling in the fraternity, then it would appear that cross-cleats on fences should be only $\frac{1}{8}$ inch thick instead of $\frac{2}{16}$. The thicker the cleats, the fatter will be the comb in the plain section. The thinner the cleats, the larger the space between the comb and the straight edge across the section.

I do not feel entirely satisfied yet that black bees do invariably use a smaller bee-space than Italians. Is it not possible—indeed, probable—that yellow bees in the localities of Brothers Crane and Coonrod would use about the same bee-space — in the neighborhood of $\frac{3}{16}$ inch? For years and years we have taught, and prac-

tice seems to show it, that the space between the two contiguous combs is about ¼ inch; that, so far from being under that distance, it is more liable to be over than under.—ED.]

"LARGE VS. SMALL ENTRANCES," ETC.

If the reader will turn to page 166 of present volume of GLEANINGS he will see how our naughty, *naughty* editor planned for a "fight" between Dr. Miller and Doolittle. Then by turning to pages 430 and 431 it can be seen how ready Dr. Miller is to "pitch on" when he has some one to rub his ears and say, "Sick 'em!" But after he has arrived in the "arena," and looks on the "troubled waters," he evidently begins to "quake with fear;" for hear him calling for help (before Doolittle has even peered over at him) in these words: "Say, Ernest, get down off the fence and stand with me before Doolittle has time to get back at me and show that my arguments are all sophistries." Then, true to his manner of always being with the man who can shout the loudest, the editor "sidles" up to the trembling doctor and whispers these cheering words in his ear: 'Joking aside, so far it seems to me that Dr. Miller has the best of the argument." And the good doctor feels strengthened; for surely they two can "lay out" any (Doo)-little man who would dare assail their masterly arguments.

Well, it was not best to enter that arena where two such mighty warriors stood, without weapons of some kind; so I have quietly waited till furnished with the same, and by their use I expect not only to drive the sympathizing pair out, but annihilate the "arena" as well, so that there will be no further cause for "bloody" battles in the future. And what are the weapons I have found by waiting, which I did not have before? Simply truth and facts; and these are such keen weapons that theory and error can not stand against them. I took the matter right to the bees and called on them for a decision — not the way the good doctor did by raising *all* of his hives on blocks, nor by "willingly taking a few stings," as the editor thought he could, but by fixing *ten hives each way* that were of as nearly equal strength in every way as Doolittle could determine; but I used the Pettit plan of enlarging entrances, rather than the blocks, as the block plan had been tried before.

Now, what did the bees decide in the matter of swarming? Well, contrary to my expectations, three of those with the enlarged entrances swarmed before any with the common entrance did. I might say, by way of explanation, that this trial was made at the out-apiary where I use the ten-frame L. hive with from 44 to 132 sections on each, so the entrance to those used on the Pettit plan was 15 inches long by 1½ inches deep, while the others had the ordinary entrance which is 15 x⅜. At this apiary the season has been fairly good, some colonies fully completing the 132 sections, while here at home it has been very poor, only two swarms issuing here; while there, all would have swarmed, only as kept from it by manipulation.

When I got that great big Pettit entrance staring before me, there looked to be so much "openness" about it that I thought brood-rearing would be retarded by it, hence swarming be late, or done away with entirely; and had it not been for the block experience of the past I should have been still more surprised with the result than I was. So the *bees* decided that large entrances were no proof against swarming.

I next got down with my face right up close to the entrance, to see the bees run up the sides and back end of the hive, as Bro. P. assured us they would do; and as the bees dropped in by the score and hundred they nearly all did the very foolish thing of either alighting directly on the cluster which hung below the frames, or running till they came to the cluster, when they would climb into it and be lost from view. Thus *they* decided that a part of the claim for Bro. Pettit's system was a myth. And, lest I forget it, I want to say right here that a setting-apart of a certain number of colonies *in the same apiary*, one-half to be tried by any new plan, and the other half by the old, is something that will always tell us whether there is advantage in the new or not; and by thus doing we shall often be saved making some strong assertions which will not "hold water," and also be kept from a loss that otherwise might occur.

But, how about that clustering-out which is such a great bugbear with our editor and others? Well, simply this: If bees are not crowded for room in which to store honey, all the clustering-out they may do in no way affects the amount of surplus they store, *providing* they have an entrance large enough so they do not go to gnawing to enlarge it, thus partially or wholly blocking the same, as they will often do where a ⅜-deep (or less) entrance is used.

My experience goes to prove that from $\frac{7}{16}$ to ½ inch is the right depth of entrance, contracting the other way where we wish a smaller one. "But," I hear the doctor saying, at the end of his nicely spun theory, "I don't say the bees will have 13 times the chance to keep cool they do in the other case, but I do say the chance will be more—a good deal more—a great deal more." And now comes the "locking horns" part, which pleases our editor so much, for *I* say they will not have nearly so good a chance to keep the interior of the hive cool with that great big 60-inch entrance as they will with the 15x½-inch entrance. I wonder if our dear doctor ever sat in a great big room with the doors and windows all wide open, with the mercury at from 90° to 95° in the shade, at a time when "not a leaf was stirring," when he thought he would "roast." Oh, yes! I know he has, and it did not seem that all of those doors and windows kept that room cool a bit. Presently

I see him pick up a palm-leaf fan, and with it send some of that heated air against his face, when, presto! he tells us he is feeling a cooling from it. Then did he ever have his sixty-miles-an-hour train stop dead still on such a day, and hear all the passengers go to "whewing" on account of the heat, while there was no special complaint when the train was in motion? Ah! I see the arena is getting too hot for you, doctor, as you begin to see that, with that large 60-inch entrance, the *fanners* have no power to send the heated air circulating all about the combs and hives, while they *do* have such power with the ½-inch entrance. And why the bees come out of the hive on hot days is so that they will not be so much in the way of the circulation of the air caused by the fanners, and not because it is cooler outside, for in reality it is cooler inside.

Then did you ever think, doctor, that your women-folks could do work to just as good advantage on the porch hot afternoons as they could in the house? Go look at those bees on the outside of the hive there during a good flow of basswood honey, at from 2 to 4 P. M. See any bees with jagged wings there? No, indeed, you do not — only those that are evaporating nectar and secreting wax. And they can do this work just as well on the outside of the hive as your women-folks can their sewing on the front porch. Now go and look, after the day's work is over, and see what a different appearance there is in those bees hanging out. An increased number, to be sure; but instead of the bright appearance of the cluster of mid-afternoon we have the dull wornout look of veterans which have returned from the field at nightfall. Now up with you, at the earliest streak of dawn. See, the cluster has not materially changed since last evening; but as you look, behold the "army" begins its march; the front of the hive clears; and by the time the sun is well up in the heavens the front of the hive is cleared entirely, and a busy "to and fro" is the order from that entrance during *all* the day, no matter whether the "women-folks" go out on the outside of the hive to do their work or not. All I wish to know is that there is section room enough for the bees to labor in to the best advantage; and, knowing that, I am not the one to blow smoke in the eyes of the women-folks, as our senior editor used to advise, because they chanced to go out on the front porch (to get out of the way) to do their work. Then, again, I wonder if the doctor ever heard of combs of honey in sections melting down when there were no bees in them, on bee-escape boards, through which little or no ventilation was admitted. This is so common in very hot weather that "good ventilation" is now put forth as one of the things that make some escapes better than others.

One thing I forgot; and that is, that, with my test of the Pettit entrances, the bees not only hung down below the frames so as to fill the whole space below them, but, as a rule, in *extreme* heat there were larger clusters on the outside of the hives than there were with the common entrance, this showing also that the fanners could not do as good work with the large entrance. Then, last of all, the sections immediately above the front of the hive were the last to be finished, and in many cases are not yet finished, while with the regular entrances this is not noticeable at all. Dr. Miller's "I should have continued it to this day if it had not been that the sections near this opening were too much delayed in being finished" explains why this is so; hence I will not dwell longer on this entrance matter, for I have a word or two more I wish to say while I have the doctor in the arena (which arena is soon to become a thing of the past), and that before our editor gets out of hearing distance, for he has already climbed away from Dr. Miller's side in his haste to get over on the other side.

Undoubtedly all noticed the eighth Straw found on page 537 of July 15th GLEANINGS, which reads as follows: "Instead of the queen laying her eggs on the outside of the cluster, she lays them in the center of the brood-nest, where they should be. That 'where they should be' raises the question whether Nature's plan of enlarging the brood-nest in spring is all wrong." And it was just laughable to see the editor go down on all fours in his haste to tumble to Dr. Miller's side of the matter, without even so much as stopping to reason on it at all. Say, doctor, what *is* Nature's plan of brood-rearing? Where are the *first* eggs deposited—in the center of the *cluster*, or on the outside of it? "Ah!" I hear you saying, "in the *center*, always." Then that's Nature's way, is it not? And the queen would lay *all* of her eggs there every time were it not that, as the brood increases, she is obliged to lay her eggs in the next nearest cells to those in which she laid the first, and so on and on, keeping just as near the center at all times as possible, consistent with those already in the cells. To prove your point, doctor, you must show that the queen would naturally lay the *very first* eggs of the season on the outside of the cluster or brood-nest. Can you so prove? Then, doctor, have not you and others told us, time and time again, that eggs and larvæ chill easily, and require more warmth than the sealed brood? And if this is so, where could there be found a better place for this young brood than in the center of the brood-nest? And if, on the ever extending plan necessary, the queen is finally *obliged* to lay her eggs on the outside of the brood-nest, will not he be a benefactor who shall so cause it to come to pass that the queen can lay in the center while the sealed brood is on the outside?

I have been taken to task during the past for following so implicitly in "Nature's footsteps," the argument being produced that man, by his great skill and invention, could greatly improve on Nature's "wrongs" (?), and after such chidings by the doctor and others it seems a little singular for him to go to quoting "Nature" to try to prove that — well, ahem! the editor doesn't seem to know whether he wrote the sentence quoted or not. But, no matter whether he or some one else wrote it; it will take more proof than the doc-

tor has produced to prove it wrong. The readers are waiting for further proof, doctor.

[One swallow does not make a summer, neither do two or three of them. The experiment friend Doolittle tried, of three colonies with wide entrances that swarmed, would hardly be a conclusive one in the face of the fact that Mr. Vernon Burt, who operates some 300 colonies, and has used wide entrances off and on for three years, and this year exclusively, gives it as his opinion, that they are a big success. Dr. Miller seems to be pretty well satisfied of their value, and our tests this season, not on two or three entrances, but on a good many, have been favorable. But all our bottom-boards are made reversible, so that, if the bee-keeper receiving them believes as friend Doolittle does, he can use the shallow entrance side

I do not know about bees going to the sides of the hive, as Bro. Pettit claims they do. Perhaps he is right, and perhaps he is wrong.

There, I guess I had better stop and let Dr. Miller cover the other points in the triangular lock-horn contest. It would not be fair for me to take any more space.—ED.]

DO BEES HAVE COLOR SENSE?

That Straw quoted by Dr. Miller, and the footnote by the editor, page 538, opens up a very interesting subject. Are bees attracted by color? Can they distinguish color? Have they any preference of color? Some years ago I was interested along this line of study, and made some experiments to satisfy myself, and am fully convinced that the above questions can be answered affirmatively. My experiments were not exactly original, but, rather, copied and repeated with variations from Sir John Lubbock, so fully and interestingly described in his work, "Ants, Bees, and Wasps." He very clearly proves that bees have the color sense clearly developed, and that they have a decided preference for blue. His experiments were conducted with great care and patience, and are worthy the attention of any student. In his work on "Flowers, Fruits, and Leaves," Sir John says bees prefer a bright or vivid color to a dull one; and bee-fertilized flowers are bright and sweet, while fly-fertilized flowers are dull, and characterized by evil odors. Fortunately for us the great majority of flowers are bee flowers. Chas. Darwin, in the "Descent of Man," paragraph 516, gives some very interesting observations. He says, quoting from H. Muller, "That bees have a keen perception of color is certain," and then he continues to show the important part color often plays in sexual selection. These facts and observations may not help us very much in increasing our honey crop, but I think it is much better to know a few things that are so than to know a great many that are not true, even though they appear ever so practical and money-making. I refer to those you complain of in one of your editorials—those new (?) Yankee inventions that so amused Mr. Cowan.

Notes and observations on color perception of bees, from some of our great bee-masters, would no doubt be interesting to many readers of GLEANINGS. L. W. LIGHTY.

East Berlin, Pa.

LARGE OR SMALL HIVES.

Mr. Root:—I should like to say a few words on the large vs. small hive question. After the experience I have had I still believe that those who advocate the use of ten frames in preference to eight do so because they pursue methods entirely different from what are generally pursued by producers of comb honey. In fact, they are mostly extracted-honey men, such as the Dadants and C. A. Hatch. With my methods I am just as much in favor of the eight-frame brood-chamber as ever; and I would assure the thousands who have adopted them that they will not regret it. They need only to learn how to use them properly. It would not do to hive swarms on ten frames of foundation or ten empty combs in working for comb honey, without contracting the brood-chamber. I want a hive that I can work without contracting. The eight-frame size fills the bill. The ten-frame would be all right if it could be worked so as to avoid swarming; but can it be done? A very good plan to pursue, if one wishes but few swarms, is to use two eight-frame hive-bodies tiered up; then, if they swarm, hive on a single brood-chamber and give sections. The same swarm, if hived on ten frames, would not be ready soon enough to catch a short honey-flow.

So far as my experience goes it will not do to contract a brood-chamber so that the super containing the sections will extend over beyond the combs occupied by the bees; therefore I want no contraction as advocated by W. Z. Hutchinson. With me it would not work unless the super were contracted to match.

There is a great deal in getting used to certain methods. I have no doubt that the wide-brood-chamber men are successful in *their* way; but I believe that E. R. Root, Dr. C. C. Miller, and others are getting hold of the method of using the eight-frame brood-chamber in a way that makes it one of the best all-around comb-honey hives for this climate — a method in which contraction by frames is avoided, and manipulation of whole brood-chambers only is necessary.

HARRY LATHROP.

Browntown, Wis., July 8.

DOOLITTLE DEFENDED ON THE FACING MATTER.

Mr. Root:—On page 502, July 1st, in a note concluding an item on facing comb honey, by Dr. C. C. Miller, you say: "Now, I wonder how many of the bee-keepers this year, if they get any honey, will take pains to put the combs in the shipping-cases at random."

Now, while I do not desire to open the discussion of the subject of facing comb honey, I do desire to correct what seems to me to be a false impression conveyed by the foregoing quotation. I know of no one who advocates putting up honey or any other product at random. The objection has been made to dishonest facing, putting a prime article in sight, but filling the rest of the package with inferior stock. For one, I distinctly stated that I saw no objection to Mr. Doolittle's method of packing; namely, sorting it up into XXX, etc., and packing the entire case with the same grade. Such honey is *all* the same grade, and of equal value for all practical purposes, but who will pretend to say that the symmetrical proportions of the comb are exactly alike?

We owe something to good taste and order in putting merchandise and other products before the eye of the customer. To illustrate, let us take the case of an apple-grower after having sorted stock for packing There would be nothing dishonest in putting the first course at the head of the barrel, with stems all down, and the apples placed in courses, so as to appear the most attractive when the head of the barrel is removed.

So also with comb honey. Sections being of the same quality, there would be nothing wrong in putting such as are capped as though a straight-edge had been used, to the front. There is no fraud in such packing as that, as the quality of the package is the same. Have I made myself clearly understood?

William M. Whitney.

Hospital, Ill., July 16.

[It seems almost impossible to cut off this discussion, but as these seem to be the tail end of the matter I let 'em pass on their merit.—Ed.]

"FACING" IN HUMAN NATURE.

I have carefully read all the articles on facing fruits, honey, etc. While this looks like great deception, I want to say that not only fruits, honey, etc., are faced, but the whole human family is shown to the world with the bright smile in society; but the dark, faulty, gnarly acts are brought out on closer inspection. Frequently we select representatives in Congress who prove their whole lives and beings are full of corruption, fraud, and disrepute. R. R. Ryan.

Salem, Oregon.

DO BEES CARRY THE QUEEN WHEN SWARMING?

One of my neighbors came the other day to tell me there was a swarm in his garden, on the ground. I went and hived them and brought them back. Next day I looked in the hive and found a clipped queen. I could hardly believe my eyes. There are no bees nearer than two miles, and that queen was clipped like mine, on the left side, both wings half cut off. The swarm was 200 yards from the nearest hive, and there was a field of three-feet oats between, so she could not have crawled that far. There is but one explanation of it—the bees carried her. The above swarm was hived in a new hive with frames filled with foundation. G. Gross.

Mt. Tabor, Wis.

THE IDEAL SUPER ALL RIGHT.

I have seen only a few reports in regard to the "Ideal" super, no-way sections, etc.; but what I have seen are, I am glad to say, most favorable. Let me add my mite. I like them very much, and shall add to what I have another year, and use none other. Then, too, if you wish an extra-large section, one that will weigh 2 lbs or more, just use two of the 1-lb. sections with a sheet of extra thin foundation between; press together, and fill up a super with these. What have you? 20 two-pound sections equal to 40 one-pound, and you also do away with three fences, but add one more pattern slat. The advantage of this, I think, is that you have extra-long honey cells, use just half as much foundation, and then it is less trouble to put in the foundation (I believe in split sections); and when you use the honey for home consumption you are not compelled to eat much extra thin foundation; and I believe that, the deeper the cell, the better the honey. Success to the Ideal!

Honey will be scarce here if we do not get rain soon. I am depending almost entirely on the fall flow for much surplus.

Malden, Ill. Geo. O. Morris.

[Yes, you can make 2-lb. sections on that plan. And that calls to mind the fact that plain sections will permit of doubling up on this plan where the ordinary scored-out boxes could not be used.—Ed.]

FRIEND MORRISON TELLS US ABOUT PORTO RICO.

Dear Mr. Root:—We were all pleased to hear from you, but were sorry to hear it was so hot. The highest yet reached here is 84°. It may get to be 1° more next month—August. After September I shall leave for the West Indies. I shall take a look at Porto Rico. It is a very fine island, and the most prosperous. It is a very fine bee country. It is the only part of the Spanish colonies worth owning. Tell President McKinley that.

W. K. Morrison.

Devonshire, Bermuda, July 21.

[We shall hope to hear from friend M. regarding bee-keeping in *our* newly acquired possession.—Ed.]

WHAT KILLED THOSE BEES?

I had a queer thing happen the other day. A friend of mine sent me a young laying queen, and I had no place prepared for her; and as the honey season was about past I thought I would gather half a gallon or so off the ends of several hives that were all covered with them. So I took a dustpan and took perhaps a pint off six or seven hives, and put them in a wire box I have for the purpose—box 12 in. long and 6 or 8 square, and put them down cellar, intending to give them the queen in the morning; but in the morning almost every bee was dead. There was about 3 qts. of them, and they looked as though they had been daubed with honey. Now the

question is, "What killed them?" I don't know. I often, several years ago, made swarms in that way, and they always did well.
Springfield, Ont. JOHN YODER.

[It would seem as if the bees had smothered. They will look as if they had been dipped in honey when confined in a tight compartment for a time. But the wire cloth cage —I hardly see how they could smother in that. I give it up.—ED.]

LARGE HIVES AND LARGE ENTRANCES; FREER VENTILATION IN THE SUPERS.

I indorse fully what you say in regard to large hives and entrances. I use from one to four eight-frame bodies, according to the needs of the colonies, and I do not let my bees hang out. I give what ventilation is needed, at bottom. I had swarms from my "double deckers" that could not be crowded on 8 frames; and I find that, to produce honey, one must have the bees, and 8 frames will not give room enough for an average queen. I have some that have filled 14 frames.

I have never used the fence and plain section, but I believe the fence is a good thing. I bored ⅜ holes in part of my separators this season, and I find that the bees commence work sooner, and do much nicer work—fewer pop-holes. I am going to give the fence and plain section a trial next season; also drawn foundation, as I think it will pay as baits if for nothing else. J. T. HAIRSTON.
Salina, I. T., July 20.

SECTION-HOLDER SUPERS OR T SUPERS—WHICH? THE LATTER PREFERRED.

I have been using Root's goods for some years, and this year I got six Dovetailed chaff, ten-frame, and ten eight-frame Dovetailed hives, all having the section-holder super, and I was pleased when I looked at them, and thought they were just the thing. I turned two of them over to the bees; and when they were filled I took them off from the hives, and then when I went to lift out the section-holder I found the whole thing securely glued together; and after I got the holder out I found the sections glued on each side to the bottom of the holder. Then I thought of the old style of movable slatted-bottom supers, and wondered where the improvement was; but by pulling, prying, and twisting I got the two supers emptied, pitching the holders and separators all out in a pile. I then calmly viewed the pile. It seemed like a barrowload. I then wondered what under the sun a man wanted to handle all that pile of surplus stuff for when three simple T tins would very much better answer the purpose. If ever I got a mean thing from the Root Co. I think it is this. Dr. Miller is ahead. A T super properly made is simplicity and perfection. I am not a man who swears; but I don't care to be tempted, so I will have these all changed to T supers, and the Root Co. must help.
Atwood, Ill. J. W. C. GRAY.

[There are a large number who hold just the opposite opinion. But let each one take which he likes. We give the option in our catalog.—ED.]

REPORTS ENCOURAGING

We are getting the largest crop of honey since 1885. I never got so much from clover. Basswood is just opening, but I fear the "take" from that will be light. I have just harvested 7750 qts. of strawberries from an acre of ground. Please tell this to A. I.
Bristol, Vt., July 11. A. E. MANUM.

This year, from 90 colonies, spring count, increased to 130, and we have 7000 lbs. comb honey. Last season we had 2300 lbs. We have 5000 lbs. comb honey to sell. It is clover and basswood; will take 11 cts. per lb. for it. ALBERT SNELL.
Clayton, N. Y., July 20.

We have now taken about a carload of honey, nearly all from basswood. This is not a large yield from about 500 colonies, but it is not a failure, as we expect some more from basswood in the northern apiaries, and usually get a good fall crop from all.
Portage, Wis. FRANK MCNAY.

This is the best season in this vicinity for the past 10 or 15 years. The following are the principal producers, and amount of crop.
Ham Smith, 1000 lbs., 12 swarms.
A. Gussy, 2000 to 3000 lbs., comb.
Jacob Moore, 1500 to 2000 lbs., comb.
Gracy Talcot, 1000 to 1500 lbs., comb.
I. Badder, 1000 to 1200 lbs., comb.
Ionia, Mich. HAM SMITH.

This season has been a very good one in this locality. I have so far secured nearly 60 lbs. per colony, spring count. Basswood is now in the height of its bloom. With this and buckwheat yet, I look for the above figure to be considerably increased. Basswood has a very heavy load of blossoms, but does not appear to yield as well as it does some seasons. G. F. TUBBS.
Ammimsuck, Pa.

REPORTS DISCOURAGING

I run my apiary for comb honey. I have been keeping bees ten years. This year has been the poorest I ever had. Out of 45 hives I have taken only 125 lbs., and that of poor quality, being dark and strong. I have visited a number of small apiaries, and find they have no surplus honey.
Adairville, Ky. J. G. TRAUGHBER.

It has not been a good honey year in this locality. There is an abundance of white clover; but much rain in the month of June, and since the fourth of July a severe drouth. We shall have 300 or 400 pounds of white comb honey to sell. WM. BROWN.
Rochester, Minn.

PRICES STIFFENING.

IT is a great pleasure to note how prices on comb honey have stiffened. See our Honey Column. We used to think that supply and demand had but little to do with the price of honey; but this poor year has shown that the price is going up. Whether it will go higher than 12 or 14 cts. for white and fancy, I can not say. Last year at this time prices were ruling at 9 and 10 cts.

HARRY HILL.

THAT new editor of the *American Bee-keeper*, Mr. Harry E. Hill, is going to give us all warm competition. His experience in keeping bees is probably more varied than that of any other apicultural editor in the United States. He has seen and kept bees from New York to California, from California to Florida, and from Florida to Cuba. He, if any one, ought to know the influence of locality and its effect upon bees. The *Amer. Bee-keeper*, under his editorial management, fairly bristles with good things. GLEANINGS offers its congratulations to the W. T. Falconer Co.

NARROW SECTIONS.

MR. HUTCHINSON has this to say regarding the width of sections :

The width of sections that I used this year is only one and one-half inches. Several years ago, when I lived at Rogersville, I used several thousands of sections of this width. This is the width that bees naturally build their comb, and they build this width of combs more even and straight without separators than they do the thicker combs. They complete and cap the combs quicker. Fourteen sections weigh about twelve pounds. I like sections of this width.

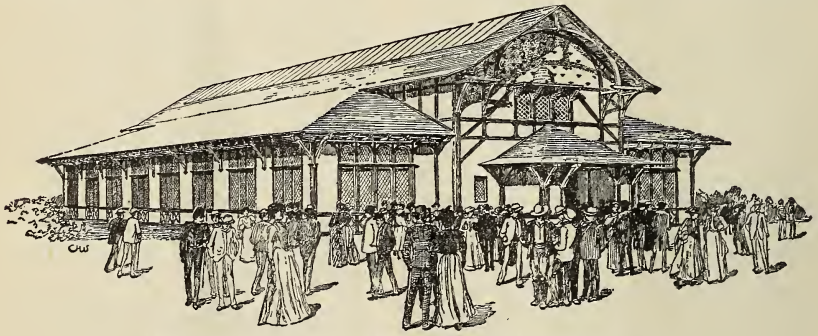
If I can read the signs of the times the trade will gradually work toward lighter-weight section honey-boxes — not for the purpose of deception, but because the wholesale price of honey has got down so low that one or two things must happen : The price must go up or quantity decrease. In good years the former is out of the question.

PEANUT QUEEN-CELLS.

THOSE big peanut queen-cells on a stick, *a la* Doolittle, give larger and better queens, according to our Mr. Wardell, than by the old method. I supposed this was true, but there is some satisfaction in having it proved before our eyes. I have just received a line from Mr. Alley, inquiring why we fuss with artificial Doolittle cups when the natural ones can be raised more cheaply by the bees, as per directions in his book. But there is one great advantage in artificial cups; viz., they stiffen the base of the cells so that one can mash them right into the side of a comb, without crushing the cell itself. The natural cell-cups are frail things, and require to be handled like eggs.

THE APIARY BUILDING AT THE TRANS-MISSISSIPPI EXPOSITION.

IT is not often that bee-keepers are fortunate enough to secure a separate building for the display of bee-exhibits. Two or three such buildings have been secured at several expositions; but they were comparatively small, and were lacking in architectural appearance. But, thanks to Messrs E. Whitcomb and L. Stilson, a magnificent building 75 x 138 feet has been erected at the Trans-Mississippi Exposition. Of it, E. T. Abbott, of the *Busy Bee*, who has seen it, says: "It is safe to say no such building was ever before erected exclusively for the display of apiarian products." The *American Bee Journal*, in speaking of its appearance, says, "It is of the Swiss farmhouse style of architecture, and is declared by experts to be the best arranged building ever erected for bee exhibits."



APIARIAN BUILDING AT THE OMAHA EXPOSITION.

Unfortunately, owing to the fact that we were fairly snowed under with orders we were unable to get our exhibit in place at the opening of the exposition; but Supt. Whitcomb was kind enough to grant us an extension of time. If every thing has gone according to calculation our exhibit is now erected and in place. During the convention, Sept. 13, 14, 15, one or more of our people hope to be present to "explain things."

The big convention, and the largest and most magnificent of apiarian displays, with the very low railroad rates, ought to prove drawing cards — to bee-keepers. Let every one come who possibly can.

RAILROAD RATES FOR OMAHA.

THE next meeting of the United States Bee-keepers' Union will take place at Omaha, Sept. 13, 14, 15. Railroad rates will be one fare for the round trip plus $2.00 "from the Western Passenger Association territory east of and including Utah, except that from points within a radius of 150 miles of Omaha the rate of one fare for the round trip will apply." Reasonable rates have been secured at hotels, and you may be sure that Bros. Whitcomb and Stilson will see that every necessary detail is carried out. The Home of the Honey-bees will be represented of course.

SNOW-WHITE OR CREAM-COLORED SECTIONS.

THE editor of the *Review* quite agrees with Mr. G. K. Hubbard, that it is only the bee-keepers who demand snow-white sections; that neither the merchant nor consumer asks for them. And in turn I quite agree with Mr. Hutchinson, that it is poor business management to pay for extra whiteness. In our catalog for the last two years we have tried to educate our fraternity up to this sort of doctrine, but somehow bee-keepers will insist on white goods, in spite of the fact that white honey would show off to better advantage in the darker or cream-colored box. Put a cake of nice white honey, for instance, down on some clean snow and it will appear dark by contrast. Of course, snow is whiter than the whitest basswood; but there is a great deal of this wood that is much whiter than the average of white honey; and I can not and never could see the sense of paying more money for the so-called snow-white when it is quite liable to make the honey it incloses appear darker by contrast.

The supply-dealer is perfectly willing to give his customers their choice; and if they are determined to pay more money for the white sections, he has no fault to find.

THE HONEY CROP FOR 1898 POOREST IN YEARS.

LATER reports seem to confirm previous reports to the effect that the season this year comes as near being a failure, so far as honey is concerned, as any year bee-keepers have had for many a year back. A few have been fortunate enough to secure good crops, and market quotations, owing to scarcity, indicate an advance in both comb and extracted. The season seems to have been the poorest in our own State of Ohio. In sections of West Virginia, Pennsylvania, Indiana, Michigan, Wisconsin, and Minnesota, good crops are reported; and the season in Vermont seems to have been exceptionally good; and reports indicate fair honey-flows in other portions of New England. Of course, the season in Central and Southern California was a complete failure, owing to a lack of rain. In Northern California some honey was gathered. Colorado is the one State out of all the rest that will be the banner honey State this year, for the season was considerably ahead of last year. Very flattering reports have come from Florida.

COMB HONEY IN PLAIN SECTIONS.

WE have examined several lots of honey put up in plain sections; and, while not as free from pop-holes as we hoped, they are certainly an improvement over that in the old style. The combs are whiter, probably through a freer circulation, and are a little fuller in the boxes. Well, here are three letters that will speak for themselves.

Your sections and fences are perfectly elegant; and I consider the fence the neatest, best, and most convenient thing ever devised for the purpose of separators.
Bloomingville, O., July 22. R. R. HARRIS.

I have tried the plain sections and separators, and, contrary to expectation, they are a decided success. Owing to the free communication throughout the super, the outside sections were filled and sealed right along with the center ones, while only 15 to 20 sections to the super of the old kind would be found finished. I believe the perfect communication afforded by the "fence" to be the most important point in its favor. W. A. CAMPBELL.
Cisco, Ga., July 26.

My honey-flow is over, and I am well pleased with plain sections. I find that it requires more care to handle them; but they show up better and are more attractive than the others. I tried them on a small scale this year, and will increase next.
Calvert, Ala., Aug. 4, L. W. MCRAE.

In the case of some, at least, plain sections will be filled out no better than the old-style with bee-ways; but with a number of others they are, to all appearances, better filled. I have just been looking over a large shipment received from Geo. E. Hilton, of comb honey all in plain sections. As I looked over those boxes of beautiful combs I could not help feeling just a little satisfaction that I had had a hand in showing up the merits of fences in no-bee-way sections.

So far we have received only one or two reports to the effect that some of the plain sections of honey would not crate, owing to the bulging. We were at a loss to account for this, especially as we received so many favorable reports of the opposite character. So far as we could ascertain, there was no uncratable sections where the supers and fences were properly constructed. But we put out last season what we called our "S fences," having cross-cleats the same thickness as those used on our other fences. We did not then discover that we here made a mistake, for the cleats should have been $\frac{3}{16}$ inch thick, on fences to go in old-style supers instead of $\frac{2}{12}$. This made an error of $\frac{1}{24}$ inch, and the accumulated error would reach as high as $\frac{1}{8}$ inch down to $\frac{1}{48}$ inch. This resulted, of course, in the combs bulging more in some sections than in others, and, of course, they would be uncratable. We wonder now at our stupidity in not seeing this in the first place; but as we sold only a very few, comparatively, of our S fences, the trouble will not be very widespread.

One important fact has developed since the season opened; namely, fences and plain sections must be wedged tightly together in the super. If not wedged there is a possibility of some uncratable boxes of honey in a super. We called attention to this through our catalog and through our journal, and all the plain sections and fence separators sent out last season were provided with thin wedges; and, so

far as we know, all the honey produced in P, I, and T supers with fences are cratable.

I was talking the other day with one of our good customers, Mr. McAdams, of Columbus Grove, O. He bought a number of supers with plain sections and fences. He was prejudiced against them in the first place; but as there was so much said about them he thought he would give them a trial. After testing them he was agreeably surprised; and, much to his astonishment, supers with plain sections and fences were filled more readily by the bees than supers containing the old-style sections with bee-ways. The second letter above given is a case in point.

I stated last fall that it was *my opinion* that supers containing plain sections and fences would be entered more readily, on account of the freer communication, than supers of the old style. From the few reports already received, it would begin to seem as if the theory were going to be borne out by the facts; but, as I said to friend Doolittle in another column, page 625, one, two, or three swallows do not make a summer. I do not, therefore, put it down as a fact that the plain sections will be filled sooner than the old style; but it stands to reason that the supers of the new style approach a condition more nearly in accordance with nature. Combs in a box hive or in a bee-tree have free communication from one side of the cavity to the other. They are not shut off in so many little boxes. The up-to-date super of last year made it necessary for bees to build their combs in small shut-off compartments. In the up-to-date super of this year, with plain sections and fences, the bees have not only free communication from side to side across the face of the sections, but free communication between the slats.

Now, dear reader, we shall be very glad to receive reports covering all the points I have named above. Let us know whether theory is really confimed by the facts; and while the major part of the honey crop is in most localities secured, I have been assured that the frequent rains give promise of abundant crops from buckwheat; and I hope some of our York Staters, if they have read what I have said, will make careful observations.

CONTRACTION OR SUBSTITUTION; THE EDITOR CRITICISED AGAIN BY THE REVIEW CRITIC.

THERE are some things that Mr. R. L. Taylor, of the *Review*, does not thoroughly understand in reference to the recent discussion that took place between us, and he desires further light. He is inclined to think I am quibbling a little on the subject of contraction by calling it "substitution," and then asks for my definition of "contraction." I suppose each one of us would define the term a good deal according to our practice, past or present. But the contraction that I condemned was of that sort which implies the reduction of an eight or ten frame brood-nest down to five or six frames, the space being filled with dummies prior to putting on the supers or the issuing of the swarm. And, by way of parenthesis, it is apparent that Mr. Taylor, as well as myself, would condemn this sort o practice. The contraction or substitutio that I recommended had reference to two story colonies, or double brood-nests, each a large as the eight-frame type. To contract a eight-frame brood-nest down to six or eigh frames is one thing; and to contract a two story sixteen-frame brood-nest down to eigh frames is another thing. A five or six fram capacity is small for any thriving colony, i seems to me; but an eight-frame brood-nest with at least two supers to take the place o the brood-nest taken off, would give the bee all the room they could occupy. Now, I an willing to admit, for the benefit of frien Taylor, that both are a species of contraction and to save any further argument I will cal it contraction. But there is a distinction "allee samee" (excuse slang). One kind can indorse; but the other kind I condemn a bad practice.

Again, Mr. Taylor says:

> To show the ill results of hiving swarms in con tracted brood-chambers, and that that plan is bein abandoned, the editor quotes two instances from th "first volume of the *American Bee Journal* that h picked up."

Now, Bro. Taylor, I do not know that anywhere on that page (518) stated that con traction of the other sort — the Hutchinso kind—the kind that takes place *after* the hiv ing of the swarm—was being abandoned. introduced only the two instances where such a procedure seemed to be a failure, to show that it had not been a success with *all*. The on the same page I quoted another man wh had used the plan, and expected to continue it

Again, Mr. Taylor still insists that I impl that two and three story colonies do no swarm, by picking out *parts* of a couple o sentences. If he will read the *whole* articl through carefully—or, better, the several arti cles—and not pick out a sentence here an there, he will see that I do not convey tha impression. A single sentence in any articl is quite apt to be misleading when taken b itself.

In one other portion, page 243, referring t the size of brood-nest in its relation to th size of the colony, he says he does not under stand me, and says he presumes it is owing t his stupidity. Not at all; but his confusio has made me worse confounded. Perhaps i is I who am stupid. But I am certain that ou methods and beliefs are not so very far apar when brought to an exact focus, except, per haps, that he believes that a single eight frame brood-nest is large enough, and I hol to the opinion that I want, some of the tim at least, two brood-nests of that size.

There are some things, Bro. Taylor, tha even the printed page apparently reveals a through a glass, darkly; but be that as it may there can be no animosities at *this* end of th line. Why did I refer to it? Because som of our readers, not knowing us both personal ly, might think we were at loggerheads. Yo are not in the habit of wishy-washying (ex cuse again the slang) your friends with hon ied words; and when, therefore, you criticise know there is a kindly spirit back of it all

On Thursday, July 28, I started with all the enthusiasm and animation of a schoolboy at vacation time, for my trip to Yellowstone Park. Thanks to our recent rains, Northern Ohio was looking remarkably well. The Lake Shore & Michigan Southern Railroad passes through a very fine part of our State; and the miles of cornfields, stretching far off into the distance, with their rich dark green, is a refreshing contrast to *some* of the cornfields we passed earlier in the day. I tell you, it is a beautiful country along in the vicinity of Norwalk, Clyde, Fremont, and so on to Toledo. The towns and cities are full of business, and are growing; and the farming lands are all occupied with good crops, with scarcely an acre growing up to weeds and rubbish, as we see it in some places. Near Clyde we see acres of cabbages, and I am told they ship them by carloads. The stations along the road I have mentioned are not only models of neatness, but the grounds adjoining are, many of them, really beautiful. It is a very pleasant road to travel on, all the way to Chicago. And, by the way, Northern Indiana has some beautiful manufacturing towns and cities, as well as Ohio I was pleased to see on the bill of fare in the dining-car, "No wines or liquors sold while passing through Ohio." Now, why can't Indiana and Illinois scrape up energy enough to come up to the same standard? Can any one explain it?

Let us go back to Ohio a minute. Round about Fremont there are a sort of prairies with beautiful natural groves, or patches of woodland, that make the route especially beautiful; and another feature that took hold of *me* mightily was the beautiful stone pikes, hard and smooth. In the summer time the wagon-travel is mostly on the dirt road at the side, leaving the hard stone road almost clear for the boys and girls to run their wheels. I did not find these stone roads in Illinois or Indiana. The Lake Shore road has been called "America's greatest railway." Any information in regard to travel over it, either east or west, will be given by A. J. Smith, General Passenger Agent, Cleveland, Ohio.

Toward night we had a refreshing thunder-storm, and I enjoyed watching the farmers as they dropped their tools and hurried in out of the wet. Most of them covered their harvesting-machinery with a canvas sheet made on purpose, but not all. A few pulled their plows out of the furrows and turned them up so the water would run off quickly and let the polished metal soon get dry again. Now, friends, how many of you leave your plows in the dirt when a rain comes up suddenly? Quite a number draw manure out on the oat stubble just as soon as the grain is cut and shocked up.

On account of the rain I stopped at the Great Northern Hotel, near the depot. It is 18 stories high, and things are in fine style, I tell you. I should like to show Huber an electric device that turns out the electric lamps when you take the key out of the door of your room. If you remove the key from the door when you are on the *inside*, the lights don't go out. When you go into the bath-room it is lighted up and stays lighted up till you go out. As soon as you go out and shut the door the lights are out. This modern hotel has many similar surprises.

I am writing these notes on a shady seat in Lincoln Park. I am close beside the Aquatic Garden. Water-lilies of gorgeous hues, and as large as dinner-plates, are all about me. Yes, and the celebrated *Victoria regia* is near, and in full bloom too. Almost all the water-plants are in bloom. The water-poppy is a pretty plant, and seems to thrive at common temperatures. Some water-hyacinths of immense size, far larger than those in Florida, are making a beautiful show just now. I came over here on a wheel that the editor of the *American Bee Journal* was kind enough to lend me.

Very early in the day I asked a policeman (near the big hotel) if he could tell me where I could rent a wheel thus early. He thought a while, then said, "Oh, yes! I can fix you out exactly. There is a feller sleeps in that place right over there, just to catch such trade. But you will have to make a —— of a racket to get him up."

Now this policeman was very kind and gentlemanly, with the exception of that blank word. Would it be too great a thing to expect of the Chicago police, or would it be too great a task for them to consider that the stranger asking information *may be* a Christian, and that he *may be* greatly pained to hear talk like that?

I am afraid I have said it before, but I *must* say it again: Never before in my life have I seen such entrancing, gorgeous beauty as the scene before my eyes, as I sit contemplating an acre or two of bedding plants in Lincoln Park. The flowers and plants are not new; but the grouping and contrast form a harmony of colors that I did not know before was possible. Several things, perhaps, combine to give me this *thrill* of joy and pleasure. You see, it rained last night, and the warm rain was just what the plants "thirsted" for. And I have had a wheelride, and then a delicious nap here in the shade of a tree, with the lake breezes fanning my "brow." Then there are boys and girls all about me. Little ones are trudging along delightedly with their pas' and mas' lunch-baskets, tin pails, etc., for they have come out on the street-cars and are to have a picnic in this beautiful place. Besides the flowers, there are animals and birds—birds of plumage that rival the flowers; and then beautiful fountains are playing and splashing on this warm July day.

I don't know what this great beautiful park cost; but say what you will of Chicago, she has done a grand and noble thing for her people and for her *children* in making this beautiful spot where they can get air, exercise, and health. I have visited the parks of nearly all

our great cities, and would put Lincoln Park, Chicago, ahead of all others.

The landscape west of Chicago, although still devoted to grain, contrasts with what I have passed in being more rolling; and the vast prairie land, dotted with its wooded hills, makes a very pretty sight indeed. I don't see just why all the timber is on the hilltops, unless it is that the more fertile valleys have been cleared off. As we get into Minnesota I am reminded again and again that Minnesota wheat leads the world in quality if not in quantity. The Chicago & Northwestern is one of the best railroads to ride on I know of. Almost 400 miles were made (stops and all) in a little less than 10 hours; and there was so little dust that, although I rode constantly with an open window, I scarcely felt travel-stained at all. The country around Eau Claire, Wis., is especially delightful, and I saw one very pretty little apiary right near the track.

Our Wagner cars were not only electrically lighted, but a little shaded incandescent globe is right on the back of every seat, right over your shoulder, so you can read the finest print as easily as by a shaded lamp on your own table at home.

D. M. Aldridge, T. P. A. of the Chicago & Northwestern Railroad, Cleveland, O., can tell you all about the Pioneer Limited, Chicago to St. Paul and the far Northwest; also to Omaha, Denver, and California via the electrically lighted vestibuled trains.

Mr. and Mrs. Acklin were at the depot at St. Paul to welcome; but as I didn't know them and they didn't know me it was hard to "pick each other out" in so great a crowd; but we made it. I gave great praise to Lincoln Park, in Chicago, but I shall have to confess Lake Como Park, near St. Paul and Minneapolis, almost its equal, both in size and embellishment. No beer is sold on the grounds, no dancing-pavilions, and no *dogs* are permitted to enter. I beg pardon for the combination I have made—it just "happened so." Another thing: On the picnic ground at Como Park, just at sundown, Saturday night, they had an Endeavor meeting on a platform in the open air. Somebody said an Ohio man was in the crowd; and, after being invited, I told them it gladdened my heart to see the ancient custom revived of commencing the sabbath day at sundown Saturday night. By the way, there is something peculiarly impressive about an open-air meeting just about sundown. Just try it, you Endeavorers, and see if you don't get a special blessing.

On the siding, near Mr. Acklin's, we saw a beautiful new passenger car inscribed "Glad Tidings." At first I thought it might be for some new sort of pleasure excursion, or something of that sort, and then I pondered that there is only one "glad tidings" that the world can ever receive, and investigation showed the car was really devoted to the "glad tidings of great joy," and no other. It is an evangelist car, and appropriate scripture texts are to be found inside and out.

You may remember that St. Paul is the city that has a part of it where the people will not tolerate a saloon of any kind, and so th *don't have any*. Do you catch the moral? you don't, visit both localities and you w then.

I saw a boy in St. Paul who sat perfect still on his wheel when he was waiting for car to pass. He simply turned the fro wheel around at right angles, and sat as st as if he were on a stool. If we might catch on to this it would save a lot of gettir off and on when waiting for teams or cars go by.

All through the West I see potatoes witho any kind of blight, although in many plac it has been very hot and dry. How glad v should be to have such a state of affairs Ohio!

While near Minnehaha Falls, looking the Mississippi River going down the rapid I asked why in the world that great volun of water was not made to drive the electr cars between the twin cities, as well as to fu nish their lights. Well, next day, when Minneapolis, I found they had been doing th very thing for some time past. A series dams are all down through the city—dams secure that the great freshets go right ov them without doing injury. These dan carry turbines that drive great dynamos; ar this immense water force drives the greate gristmills the word has ever produced. Mi nesota wheat and flour lead the world.

Years ago a genius planned to harness th boisterous river, and he actually made a gre tunnel right under the river bed; but it brok through all at once, and washed the ventur some miners out at its mouth in such a gre maelstrom of water they could never be i duced to go in there again, and the ruins his enterprise still stand unfinished.

BEE CULTURE AND AGRICULTURE IN JAPAN

We are greatly pleased to receive, from th firm mentioned below, a copy of a work o bee culture and also a sample copy of a popu lar agricultural work published in Tokyo Japan. We take the liberty of copying th letters just as we received them. Our goo friend Ikeda will, I am sure, pardon us whe I tell him that I am sure his kind words wi touch the hearts of thousands of our America people:

Gentlemen:—I have the pleasure to offer you a cop of Prof. Tamari's work on bee culture, and a sampl copy of our "Popular Agriculturist." These are pul lished by us, and in the latter we should like to giv some remarks on bees. If you will kindly give y your valuable paper hereafter, in exchange, we sha be much obliged to you. J. IKEDA.

Tokyo, Japan, June 28.

In Japan, apiculture is not developed yet, thoug people have kept bees from unknown time. Th species of bee is perhaps a native one. They wor very diligently, and are very gentle, but they negle to gather up all the honey from one flower, but mov too soon to other flowers, leaving the honey behin

They are not able to make a great swarm, but are liable to make another swarm soon. Sometimes the first-separated swarm separates again during the year.

The body is a little smaller than an Italian, and its abdomen is gray. The hives are not made especially, but some empty barrels are used, and they are put under the eaves of a house.

These bee-keepers are almost ignorant as to how to make a new swarm, and think it is good luck. There is a proverb, saying that "when one's hives go to increase, one will be a millionaire."

Prof Tamari, of our Imperial University, has a reputation that has spread all over the apicultural world. He was a pupil of Prof. Cook, and was very much inspired by this interesting industry; and after he left America he practiced it and wrote a work devoted to that line, and taught people the way to feed bees. This book was so much welcomed that it soon reached the third edition.

We have hives now, and are trying to gain Western knowledge of them.

We publish a monthly magazine called *The Popular Agriculturist*, devoted to agriculture, and we should like to give some remarks in it on bee culture. If you will teach us any thing in that line we shall be very much obliged.

Some scholars say that Japan has progressed lately. If that is true, it came from an American named Commodore Perry. He opened our seaport, and taught us to introduce Western knowledge.

Now, in another way Prof. Cook gave us light through Prof. Tamari. We owe very much to you Americans. Long live America! J. IKEDA.

Tokyo, Japan, June 27.

The book on apiculture contains a picture of our apiary here at the Home of the Honey-bees—or, at least, it was a picture before our buildings encroached on the boundaries of the apiary. The book contains 170 pages. It has some excellent plates in the back part, of all things pertaining to bee culture. The letters are Japanese from beginning to end; and unless I look at the pictures I can not tell whether the book is right or wrong side up, nor can I tell the right side from the left. The characters are all Japanese. There is not even an English figure. The presswork is excellent. The cuts show remarkable skill and ingenuity. The book on agriculture contains excellent cuts of most of our well-known vegetables, with a comical picture of a market scene in the back part, with a radish so big they are almost holding a picnic on top of it.

Let me say to our brother, in answer to his closing words, "Long live America," "Long live Japan;" and may the time speedily come when we shall not only unite in the pursuit of bees and agriculture, but in bringing righteousness, temperance, and purity instead of iniquity, over the face of the whole wide world.

GREENHOUSE-BUILDING.

A. I. Root:—Some time ago you spoke of making sash for a greenhouse by putting the glass in a sawkerf. Have you tried it enough to know if the plan is a success? I am going to build a small greenhouse, and should be thankful for any hints, as I am a new hand, and have but a small capital. What is the cheapest reliable way of heating? What size of glass would you recommend? F. W. HUMPHREY.

Oronoque, Conn., May 25.

By all means, butt the glass instead of lapping it over. If I am correct, glass for greenhouses, sashes, and almost every purpose, is now almost universally butted. Lapping is the old-fashioned out-of-date style. For many purposes, greenhouse men prefer that joints between the sheets of glass be not absolutely air-tight. If, however, you do want them air-tight, be sure the glass is cut square enough to make the ends fit; then dip the edges in thick paint, and you have a water-tight joint with very much less shade than when they are lapped.

The cheapest way of heating is by a flue, as described in the tomato-book. But a much more satisfactory way is by the use of steam. Hot water costs a little more than steam, but has some advantages. The larger the glass, the less shade you have. But larger sheets cost more per square foot than small ones. In covering our greenhouse recently with a permanent sash roof, instead of sashes we used glass 12x15, and that is a very good size. And, by the way, don't use sashes at all on your greenhouse, but slide your glass right into grooves cut in the rafters. We think it will pay you to have some of our books on greenhouse construction, even if you are going to build ever so small. I would recommend especially "Greenhouse Construction," by Prof. Taft. The price of the book is $1.25. It would pay you to have a knowledge of all the recent improvements, even if you do not invest more than $25 in the way of a greenhouse; for a good many times it is *cheaper* to build right than it is to build wrong.

TOBACCO STEMS AND TOBACCO DUST—THEIR VALUE AS A FERTILIZER.

Mr. Root:—Look in the April 30th issue of *Rural New-Yorker*, page 321. Prof. E. B. Voorhees says that tobacco stems are worth $10 to $12 per ton for manure, and that agrees very nearly with the analysis made by the chemist of the Massachusetts Agricultural College. The insecticide property may, at a higher price, make them valuable.

Bozrahville, Ct., June 7. WM. H. ALLEN & SON.

Thanks for your suggestions, friend A. If I am correct, our question to the people at our Experiment Station was in regard to the tobacco *dust*. The tobacco dust we use and sell, I think must be of considerably more value than the stems, as the stems are composed to so great an extent of woody matter. The dust, when it decays, resembles the leaf-mold we find in the woods. The stems would be more like brush. I should be glad to have some of our Experiment Station people give us further facts in regard to the matter.

A HINT FOR GOOD HEALTH AND LONG LIFE.

It can not but be surprising to any one who will give the subject a moment's consideration of the fact that, when we remember that our lives are so entirely dependent on the air we breathe, that our *health* must very largely depend on the same element, and on the manner we use it in our daily lives; and in view of this, how seldom is the fact mentioned or considered, or any means proposed by which we shall be the better prepared to use it to the best advantage!

Will you allow me to suggest a hint for the regular practice of a way that will not be a task, but an absolute enjoyment of that which will both enlarge our capacity for using this life-giving element, and, without a doubt, do much toward improving our health; and, if it does not prolong our lives, it will give greater enjoyment while we live.

My plan is to combine some pleasant singing with the regular task of expanding the lungs by deep breathing. Select a time when you can be at leisure

for a few minutes, say at the close of the labors of the day, when you have seated yourself to rest. Select a hymn suitable to the hour (I have chosen one for my own practice, "Glory to thee, my God, this night," which expresses thankfulness for the blessings of life, and a prayer for forgiveness, for protection and guidance), having all strictures removed that would interfere with the full expansion of the lungs, and choosing a very easy tune to suit the words. I am careful to draw in a *full* breath before I begin; and, as I proceed, after every two lines I replenish the lungs with another deep inspiration:

Glory to thee, my God, this night,
For all the blessings of the light.

Draw in another full breath.

Keep me, oh! keep me, King of kings,
Under thine own almighty wings.

Draw a full breath.

Forgive me, Lord, for thy dear Son,
The sins which I have ever done.

Another full breath.

That with the world, myself, and thee,
I, ere I sleep, at peace may be.

Another full supply of air.

Teach me to live, that I may dread
The grave as little as my bed.

Fill the lungs full.

Teach me to die, so that I may
With joy behold the judgment day.

Again another full draft.

Oh! may my soul on thee repose,
And with sweet sleep mine eyelids close!
Sleep that shall me sprightlier make
To serve my God when I awake.
If in the night I sleepless lie,
My soul with heavenly thoughts supply;
Let no ill dreams disturb my rest,
Nor powers of darkness me molest.
Oh! when shall I in endless day
For ever chase dark sleep away,
And, with the holy angels, sing,
Glory to thee, my God and King!
Praise God, from whom all blessings flow;
Praise him, all creatures here below;
Praise him above, ye heavenly hosts;
Praise Father, Son, and Holy Ghost.

This practice every day requires not a full force of the voice. The main requisite is to get a full expansion; and this will in a short time enlarge the ordinary breathing. The normal respiration of the majority of persons is less than one quart, while our all-wise Creator made us with a lung capacity of four to five quarts, unless we have been so foolish as to curtail it by tight clothing. We laugh at the Chinese for binding the feet of their girl babies; but we, who call ourselves enlightened Christian females, put ligatures around our waists, and reduce their size one-third to one-half the size God intended they should be, and then wonder that we fail to enjoy good health, when we are unable to breathe enough air to bring the blood to its proper health giving state. Dear reader, have you sinned in that way? If so, confess, repent, and do so no more. A. H. Van Doren.

My health got worse by the time I wanted to go to South America, so I didn't go, and I have to tell a better remedy than even lean meat, to get good health and to keep it. I found it just a month ago while reading. I became convinced, and I laid the book down long enough to remove my medicine-bottles off the table and out of sight. Then I called on the Lord to be my doctor, partner in my work, guide, protector, and friend. I asked him to teach me to "love my enemies," and to have full faith in truth, and to let me show it in my work, so I may "have life, and that more abundantly," as Jesus said. In a few days I had opportunity to make love to my most bitter enemies. I had never done them any *harm*, but they knew that they couldn't expect to be treated kindly. I spoke to them kindly, and invited them to come and see me, whenever in my neighborhood. I tell you, it was as if a cannon-ball had fallen on them. After a little they said, "You must come and see us."

This is only a sample I am telling you. Every thing I have around me is flourishing, and I am feeling God's blessing more and more day by day.

I never was very bad (at least, to my knowledge); but this is a different thing, to "be born again" (of the Spirit). We had a good sermon here explaining humanity and divinity, when Nicodemus came to Jesus in the night. In Adam we have death, and in Jesus eternal life.

Since I have found full faith in God I haven't touched a drop of medicine, and am getting better daily.

Goulding, Fla., May 13. Chas. Herrmann.

Friend H., I rejoice in the discovery you have made. A great many times during this poor life of mine, when doctors and all human aid seemed to be at fault, I have had some experience much like your own Some say that you are mistaken—that it is imagination, etc. But, dear friends, a mistake that causes a man to—love his enemies, and to do good to those who hate him, can not be a very bad mistake, for it is placing one's feet on the solid rock — the rock Christ Jesus, that can never pass away, even though the heavens and the earth do pass away. May God be praised, dear friend, for the experience you have given us, so honestly told, and so plain and simple. May we all profit by it.

KIND WORDS FROM OUR CUSTOMERS.

STRAWBERRIES AND BEES.

I am pleased to tell you that the two "Earliest" and one "Darling," received some time ago, are doing splendidly; are all sending out plenty of runners—in fact, are doing more than I expected, and I am well pleased with them. Please let me hear from you. My bees have done well this season—as well as they did last, but the weather is cool now, and they can't do much. I expect to have at least 2000 lbs. from 39 colonies, spring count, and increase to 52.

Alphin, Va., July 11, 1898. P. I. Huffman.

Mr. Root:—Your visit to Vernon Burt, in July 15th issue, was read with interest. All such visits to bee-keepers are interesting. As most of the large successful honey-producers seem to be too busy, or, for some reason or other, do not write out their practice and experience for others, the only way for the rest of us to know their way of doing things is to visit them; or the least expensive is to subscribe for the bee papers and have the editor or an able correspondent visit them and write it out for the rest of us. Your travels among bee-keepers have always been appreciated.

Renfrew, Pa., July 21. H. H. McKinney.

Thanks for your kind words in reference to a visit among bee-keepers. This is a feature that we hope to keep prominent in Gleanings.

I subscribed for Gleanings last year, beginning September 1st; clubbed with A B C of Bee Culture. With the instruction obtained from them I have been very successful with the few bees which I have; and by following the directions given in the A B C I have not made one mistake. I have transferred, united, divided, and requeened, without a single loss, and had no knowledge that these things could be done before. I have now ten fine colonies in dovetailed hives, and I am proud of them. I am glad that I ever became a subscriber to your journal, as I believe every word of it to be conscientiously written, and I hope some day to have an experience interesting enough to be worthy of a place in its columns.

Modena, N. Y., July 11. Stephen Paltridge.

THE STORY OF THE BIBLE.

Dear Mr. Root:—I have thought many times that I would tell you how much good the "Story of the Bible" which you gave to our children years ago, had done in our home. On the fly-leaf is written, "Harold, Dudley, and Caddie Reed, from Uncle Amos, April 2, 1884." It was read to the older children for years, and now it is doing duty for Ted. It has been read through to him once, and we have got as far as the book of Job in the second reading. He will listen and enjoy hour after hour Sunday afternoon, if he can only get some one to read to him. I think we can hardly overestimate the good such books do read to children when they are quite young, giving them a good knowlegde of the Bible, and helping them to keep the Sabbath at the same time.

I want to thank you in the name of our entire family for sending us this book.

With kindest remembrances to you and yours, every one, I am, Very sincerely,

Oberlin, O., July 13. Kate A. Reed.

[I suppose you will notice the above was not intended for print; but I am sure the dear friend who sent it will not object when I explain to her that I feel just as she does, that this book ought to be put into the hands of the children more than it is. Her experience is just about the same as ours with the book in our own family. At one time we thought Huber would keep reading it over and over, to the exclusion of every thing else, if we did not stop him. We used to sell these books by the hundreds, and I do not know why the sale has dropped off unless it is because other things have claimed attention. But I wish that those who have the book would look it up; and if their own children are not already familiar with it, start it going again. Lend it to the neighbors' children, and see that it is kept busy doing good until it is worn out. The price of the book is $1.00; but it is so large that the postage on it is 24 cents.

HELEN KELLER.

Our readers have doubtless kept pace with the wonderful story of Helen Keller; but, notwithstanding, I think they will keenly appreciate the following extracts from a personal letter to her good friend (and our good friend) George O. Goodhue. I think no further introduction will be needed for either one or the other:

Please tell Uncle Amos I had a letter from our dear friend Helen Keller last week. She retains a firm hold upon the warm affections of all her old friends, and is constantly gaining new ones.

She is now having her vacation; has a new tandem bicycle, with which she is perfectly delighted. How Uncle Amos would enjoy being her guide on some of these trips! It would certainly chase the "blues" far away. She has also a "dear little boat," the Naiad, in which she often rows a companion three or four miles. I wish I could accept her invitation to join her this summer in some of these trips. Listen to her whose beautiful soul eyes often see so much more than ours of grosser and dimmer sight:

"I do wish I could give you a row around King Philip's Pond, it is so beautiful. The trees and bushes come down to the water's edge to look at their own beautiful images, and the lovely pond-lilies greet the day with a shower of perfume."

Not only does she see with loving, sympathetic sight earth's beauties, but her vision is also strong and clear as to that which affects the welfare of the world. The following extract is from another letter I received some six weeks ago:

"Of course, you are feeling very sad about the war. War is cruel, and this one seems unnecessary. I can not help sympathizing with the poor Cubans. Spain's cruel treatment of them makes me burn with indignation; but at the same time it seems dreadful that my dear country should have been the first to break the peace of the world, even though her motive is so generous and humane."

I will add one more extract from another of Helen's letters, a charming illustration of her graceful clearness of vision as well as tender heart. After telling me of other books which interested her, she says:

"I have finished Nansen's thrilling narrative of his Arctic expedition. I found it most fascinating. There is something new and startling on each page, and I was thrilled through and through by the bravery and daring with which he and his clever men encountered peril after peril, and passed safely through all dangers in their wonderful vessel, the Fram. From the regions of eternal snow and ice I descended into the fair forests and mountain glens of Scotland, where dwelt in the days of old the Lady of the Lake. The poem is simply exquisite. Its verses, as my fingers run over them, pour out a stream of song and romance; and the easy, graceful flow of the poet's thoughts, and his lovely descriptions of beauty, valor, and chivalry render it most charming. But I can not help being glad that the poem belongs to the past and not to the present, and the endless wars and struggles which it celebrates are over forever; for I see, through the shadowy veil of romance that Scott has drawn over these times, the ruin and desolation and sorrow which were as much a part of those struggles as the heroic exploits of Roderick Dhu and his warriors."

Danville, P. Q., Canada.

Every time I get a glimpse of Helen Keller's life I can not help saying to myself, "Why is it that there are so many having two good eyes and yet do not see, and, having two good ears, do not hear?" Helen Keller, with this double misfortune, is still joyous over God's great mercies; and yet, can it really be true there are those who have the full use of all their faculties, who really lack for nothing, and yet throw their lives away—yes, even commit suicide? The very name of Helen Keller ought to be a rebuke to every one of us when we are tempted to complain, or to forget God's many and great and precious gifts. Dear friend G., we are greatly obliged to you for giving us these extracts.

SPECIAL NOTICES BY BUSINESS MANAGER

THE OMAHA EXPOSITION.

Last fall we made application for space in the Apiary Department of the Omaha Exposition. When the time came for opening we did not have our exhibit ready, and we were so rushed with business that we advised the management we could not get ready till our orders were taken care of. We recently forwarded an exhibit that we have every reason to believe is in position. E. Whitcomb writes us that, through the heated term, the attendance in the Honey Building has averaged 100 an hour by actual count, while the day before he wrote his letter it was four times that. It is likely, now that the war is over, that interest in the exposition will increase, and the attendance be largely augmented from now on.

DEPARTMENT STORE.

Because of the increasing demands upon our time and strength, owing to the increasing demand for the goods we manufacture, also because of the need of more room, as well as for other reasons, we have decided to close out our department store. For the next four or five weeks we shall push the sale of the stock on hand by special low prices on many lines, especially of odds and ends not listed in our catalog. By Oct. 1st we expect to turn the bulk of the stock that is left, over to another firm with whom we have made arrangements to succeed us in this line. If any of our readers have in mind ordering goods from our department store we would advise them to do so at once, so that they may have their wants supplied while we have the stock to furnish.

LATEST FROM THE EDITOR.

Just as we close our pages the following comes to hand:

Friday, Aug. 5, out in the wilderness.—I rode 40 miles on the stage-coach yesterday, with less fatigue than I supposed possible; but we were all the while looking at the "wonders." The women of our crowd declare they will have a rope tied to me to-day, to pull me away from the edge of the boiling craters. Once I was looking down into the awful chasm in the throat of the Monarch hot spring. They said an eruption was coming; but I wanted to see how it started. Finally the driver thought we couldn't wait any longer; but I had hardly turned my back when it shot up a column of water and steam almost 100 feet high. I am just getting the "hang" of them, so I can get up close and not get hurt. No words can describe the beauty of the quiet hot springs that are unceasingly building their structures of gorgeous coloring.